

# **BELLSOUTH REPLY COMMENTS**

**WC Docket No. 04-313  
CC Docket No. 01-338**

**October 19, 2004**

**Attachment 2**

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of

Unbundled Access to Network Elements	)	WC Docket No. 04-313
	)	
Review of the Section 251 Unbundling	)	CC Docket No. 01-338
Obligations of Incumbent Local Exchange	)	
Carriers	)	

**Reply Declaration of Aniruddha Banerjee, Ph.D.**

**NERA Economic Consulting**

**On Behalf of**

**BellSouth Corporation**

**October 19, 2004**

## TABLE OF CONTENTS

I. INTRODUCTION.....	1
A. Statement of Qualifications.....	1
B. Purpose of Reply Declaration.....	2
II. RESPONSE TO PARTIES THAT HAVE OFFERED ALTERNATIVE PERSPECTIVES ON THE ECONOMIC IMPAIRMENT ANALYSIS.....	4
A. Revisiting the FCC’s Impairment Standard.....	4
1. The “lessening competition” standard is better suited to merger analysis than to impairment analysis .....	4
2. Mayo et al.’s proposed impairment standard does not overcome the <i>USTA II</i> Court’s complaint about open-endedness .....	8
B. Revisiting Market Definition .....	8
C. Conduct of Impairment Test .....	8
1. Mayo et al.’s analysis of error costs is flawed .....	8
2. The initial presumption of “impairment” is flawed .....	8
3. Mayo et al.’s proposed impairment test is incomplete and one-sided .....	8
D. Special Access as Alternative to UNEs .....	8
1. ILECs cannot exert a price squeeze by manipulating special access prices .....	8
2. Higher ILEC special access price increases and supposedly high returns on special access do not connote anti-competitive behavior .....	8
E. Intermodal Alternatives .....	8
F. The Financial Vulnerability of CLECs is Overblown .....	8
G. QSI Consulting’s Impairment Analysis .....	8
III. HIGH CAPACITY LOOP IMPAIRMENT ANALYSIS .....	8
A. Goal of Analysis .....	8
B. Information for Conducting Analysis .....	8
C. Results of the NPV Analysis and a Breakeven Analysis.....	8
IV. CMRS PROVIDERS ARE NOT IMPAIRED WITHOUT UNBUNDLED ACCESS TO ILEC- SUPPLIED ENTRANCE FACILITIES.....	8
A. Summary of Positions of CMRS Proponents of Unbundling .....	8
B. Claims of CMRS Proponents of Unbundling are Unfounded .....	8
C. CMRS Carriers Continue to Prosper.....	8
D. T-Mobile and Sprint PCS Continue to Exceed Their Financial Goals .....	8
E. T-Mobile and Sprint Make Little Effort to Overcome the Alleged Impairment .....	8
F. Unbundling of Entrance Facilities or Transport for CMRS Carriers is Not Justified .....	8
ATTACHMENT A.....	8
A. Assumptions and Parameter Specifications.....	8
1. Common assumptions (for all states).....	8
2. State-specific assumptions .....	8
B. Building-Level NPV Analysis: Sample Results .....	8
C. Breakeven Analysis for Nearest CLEC (NPV ≥ 0) .....	8
1. Alabama .....	8

2. Florida .....	8
3. Georgia .....	8
4. Kentucky .....	8
5. Louisiana .....	8
6. Mississippi .....	8
7. North Carolina.....	8
8. South Carolina.....	8
9. Tennessee .....	8
ATTACHMENT B .....	8
ATTACHMENT C .....	8

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**I. INTRODUCTION**

**A. Statement of Qualifications**

1. My name is Aniruddha Banerjee. I am a Vice President with the Communications Practice at NERA Economic Consulting, 200 Clarendon Street, 35<sup>th</sup> Floor, Boston, MA 02116.
2. I earned a Bachelor of Arts (with Honors) and a Master of Arts degree in Economics from the University of Delhi, India, in 1975 and 1977, respectively. I received a Ph.D. in Agricultural Economics from the Pennsylvania State University in 1985, and served there subsequently as an Assistant Professor of Economics. I have over eight years of experience teaching undergraduate and graduate courses in various fields of economics and econometrics, and have conducted academic research that has led to publications and conference presentations.
3. Since 1988, I have held various positions in the telecommunications industry. Prior to my present position, I have been an economist in the Market Analysis & Forecasting Division at AT&T Communications, Inc., a Member of Technical Staff at Bell Communications Research (n/k/a Telcordia Technologies), and a Research Economist at BellSouth Telecommunications, Inc. In my present capacity, I have filed expert testimony before the Federal Communications Commission on depreciation

requirements of incumbent local exchange carriers, BellSouth's entry into interLATA long distance market in Louisiana, efficient inter-carrier compensation for Internet-bound traffic, the Triennial Review of unbundling, competition and entry policy, and reform of the TELRIC methodology for pricing unbundled network elements. I have also testified before state regulatory commissions on cost models for unbundled network element pricing, interconnection arrangements and imputation analysis, price regulation reform, local service rate rebalancing, potential deployment analysis for unbundled transport and high capacity loops, universal service, reciprocal compensation for Internet-bound traffic, and demand analysis for intraLATA long distance service.

4. I have published articles on telecommunications and finance in academic and industry journals and presented research findings periodically at industry and academic conferences.

#### **B. Purpose of Reply Declaration**

5. In response to the Notice of Proposed Rulemaking ("*NPRM*") released by the Federal Communications Commission ("FCC" or "Commission") in WC Docket No. 04-313 and CC Docket No. 01-338 (collectively, "this proceeding"), adopted July 21, 2004 and released on August 20, 2004, several parties submitted Comments and Declarations on October 4, 2004. A significant portion of those submissions dealt with economic and regulatory aspects of the issues identified in the *NPRM*. At BellSouth Corporation's ("BellSouth's") request, I have prepared this Reply Declaration to respond to the substantive economic and regulatory comments of various parties. Those parties include Mayo/MiCRA/Bates White ("Mayo et al.") on behalf of a coalition of competitive local exchange carriers ("CLECs"), Lee L. Selwyn on behalf of AT&T Corporation, QSI Consulting, Inc. ("QSI"), Sprint Corporation ("Sprint"), and T-Mobile USA, Inc. ("T-Mobile").
6. My Reply Declaration has three primary objectives. First, I assess the economic and regulatory principles, arguments, and empirical evidence submitted by other parties. These concern alternative impairment standards and tests proposed by those parties for

high capacity loops and transport. In so doing, I examine issues with respect to appropriate market definition, actual and potential deployment of competitive facilities, the role of intermodal competitors such as wireless, cable, and Voice-over-Internet-Protocol (“VoIP”) carriers, the substitutability of special access for unbundled network elements (“UNEs”), and the financial vulnerability of CLECs if they could no longer obtain UNEs at prices based on total element long run incremental cost (“TELRIC”). In Section II of this Reply Declaration, I offer alternative perspectives and counter-arguments to positions taken by various parties on these issues.

7. Second, I analyze the profitability of CLEC deployment and self-provisioning of high capacity loops in each of the nine states within BellSouth’s service territory. For that analysis, I make plausible assumptions about market structure and CLEC market shares, network and non-network (retailing and overhead) costs, and other parameters (including the weighted average cost of capital, the marginal tax rate, the depreciation rate, and the customer churn rate). I also use actual commercial building-specific information about annual spending by end users on telecommunications services and distances that CLEC-deployed loops would have to traverse between CLEC nodes and the served buildings. To maximize the plausibility of the results, I take full account of the costs of intra-building cable and termination, rights-of-way, trenching for conduit in which to install fiber loops, and cross-connects and multiplexer equipment needed to channelize higher capacity fiber facilities (such as at the OCn level) down to DS-1 and DS-3 levels. The end result is a 10-year net present value (“NPV”) analysis that reveals whether it could be profitable for a CLEC to deploy its own high capacity loops from its network or node to any given commercial building. As a variant of this exercise, I also perform a breakeven analysis under which alternative combinations of end user telecommunications spending (revenue) and loop deployment distances (cost) result in an NPV of zero or marginally more. This analysis is briefly described in Section III of this Reply Declaration and in more detail in Attachment A.
8. Finally, I examine the claim of some providers of wireless services, i.e., commercial mobile radio service (“CMRS”) carriers, that they are likely to be impaired without the availability of loop and transport facilities as UNEs. In Section IV of this Reply

Declaration, I demonstrate that those carriers have turned in such growth and financial performances in recent years that it is impossible to imagine any such impairment.

## **II. RESPONSE TO PARTIES THAT HAVE OFFERED ALTERNATIVE PERSPECTIVES ON THE ECONOMIC IMPAIRMENT ANALYSIS**

### **A. Revisiting the FCC's Impairment Standard**

#### **1. The "lessening competition" standard is better suited to merger analysis than to impairment analysis**

9. In its *USTA II* decision,<sup>1</sup> the D.C. Circuit Court of Appeals vacated and/or remanded to the FCC several central pillars of the impairment standard and implementation rules that the FCC had announced in its 2003 *Triennial Review Order*.<sup>2</sup> In so doing, the *USTA II* Court, among other things, vacated and remanded the FCC's finding of nationwide impairment for mass market switching and dedicated transport, and criticized the FCC's reliance on an "open-ended" impairment standard.<sup>3</sup> Although the *USTA II* Court declined to review the FCC's impairment standard itself as a "general matter," it left no doubt that that standard fell short, in its view, of the definitional precision that was required. It also dismissed the suggestion that disputes about the impairment standard stemmed only from the manner the FCC proposed to implement it.
10. The *USTA II* decision, which followed an earlier decision by the same court (namely, *USTA I*),<sup>4</sup> marked the third time that the FCC's impairment standard had been found wanting. The *USTA II* Court did acknowledge improvements in the manner in which the FCC attempted to connect impairment to natural monopoly characteristics (economies of scale) and other structural impediments to competitive supply

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<sup>1</sup> *United States Telecom Association v. Federal Communications Commission*, 359 F.3d 554 (2004) ("*USTA II*").

<sup>2</sup> *In the Matter of the Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 01-338, 96-98, 98-147, Report and Order and Order on Remand and Notice of Proposed Rulemaking ("*TRO*"), released August 21, 2003.

<sup>3</sup> *TRO*, ¶8.

<sup>4</sup> *United States Telecom Association v. Federal Communications Commission*, 290 F.3d 415 (2002) ("*USTA I*").

(including sunk costs, absolute cost advantages, first-mover advantages, and operational barriers to entry within the sole or primary control of incumbent carriers). However, even with those improvements, the *USTA II* Court faulted the FCC's latest impairment standard for stating that a CLEC would

be impaired when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are *likely to make entry into a market uneconomic*.<sup>5</sup>  
[emphasis added]

The Court found the outcome of “uneconomic” market entry to be vague and open-ended and insufficiently descriptive of the type of benchmark CLEC (most efficient? average or representative? hypothetical?) to which the standard would apply. The Court also expressed concern about the FCC's treatment of below-cost retail pricing of ILEC services under its impairment analysis. Although the *NPRM* did not directly seek comment on how best to address those criticisms in re-formulating the FCC's impairment standard, one party—Mayo et al.—filing on behalf of a coalition of CLECs—has offered a re-wording of that standard that, it claims, both addresses the *USTA II* Court's concerns and couches the impairment standard in the well-established language and principles of antitrust law.

11. Mayo et al. propose to re-word the FCC's impairment standard as follows:

Requesting carriers are impaired in their ability to provide the services they seek to offer if the consequence of failure to provide the requested network element poses a barrier or barriers to entry, including operational and economic barriers, and where the effect may be *substantially to lessen competition, or to tend to create a monopoly in the provision of the retail services that utilize the requested element*.<sup>6</sup>

12. Mayo et al. claim that this revised standard shifts the focus from “uneconomic entry” (that the *USTA II* Court found open-ended) to a “lessening competition” standard that has an established track record in antitrust case law. Mayo et al. clarify that, in their scheme of things, competition may be lessened in one of two ways: (1) reduced supply from existing CLECs or (2) reduced inclination (or “propensity”) among prospective

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<sup>5</sup> *TRO*, at ¶84. Emphasis added.

<sup>6</sup> Mayo et al., ¶51. Emphasis added.

CLECs to enter the market. From this, Mayo et al. infer that, for a conclusion of impairment, it would be sufficient to find that competition *may* be lessened, rather than that it actually *has* been lessened. That is, the standard centers on a predictable harm that has not necessarily materialized (or, a harm that is, arguably, hypothetical) rather than an actual or demonstrable harm.

13. Mayo et al. also stress that the phrase “tend to create a monopoly” does not imply that a finding of impairment (as a consequence of, say, denial of access to UNEs) must literally await a reduction of the number of providers to one. Rather, for Mayo et al., the *tendency* to create a monopoly would be sufficient for a finding of impairment. In other words, if extant operational and economic barriers were such that an eventual monopoly outcome could be predicted, then the imminent danger of “lessened” competition would suffice for finding impairment.
14. The twin effects of “lessening competition” and “tend to create a monopoly” formed the cornerstone of Section 7 of the Clayton Act, originally enacted in 1914 and significantly amended in 1950 by the Cellar-Kefauver Act. The purpose of Section 7 (particularly after amendment) was to prevent the formation of monopolies through corporate mergers (and the subsequent anti-competitive exercise of market power) in their incipency.<sup>7</sup> The first important application of Section 7 came in the *Brown Shoe* case before the Supreme Court in which the Court blocked a merger between two shoe companies, the Brown Shoe Company and G.R. Kinney Company, on the grounds that, given the “line of commerce” (product market) and “section of the country” (geographic market), the merger would likely lessen competition and create a monopoly within the defined markets for shoes at the retail level.<sup>8</sup> This landmark case established many precedents, but the two more relevant for present purposes were:
  - The Court inferred that Congress’ intent in amending Section 7 to say “*may* be substantially to lessen competition” was to accept “probabilities, not certainties.” That is, as Mayo et al. argues, this standard does not require ironclad proof or any actual instance of monopolization as a result of a merger before concluding that the merger is anti-competitive.

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<sup>7</sup> *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 577 (1967).

<sup>8</sup> *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962).

- The Court adopted standards for defining the relevant product market (“reasonable interchangeability of use” or demand-side substitutability) and the relevant geographic market (“section of the country” that corresponds to “the commercial realities of the industry” and is economically significant).
15. Mayo et al.’s application of this standard, originally and primarily designed for evaluating corporate mergers, to the impairment standard is certainly novel but it fails, in my opinion, to answer the concern about open-endedness expressed by the *USTA II* Court and raises some new concerns. I am particularly concerned that what works quite well in a *merger* context, in which nothing else changes except that two firms become one and the total number of firms in the relevant market is reduced by one, may be completely inappropriate in another context in which the landscape looks very different. The context here is not one of a merger but rather one of the obligation of an incumbent to serve its retail-stage competitors by offering its unbundled wholesale facilities at rates below those that prevail in the market for alternative facilities that are widely available from both it and third parties.
16. First, consider the remaining open-endedness in Mayo et al.’s proposed impairment standard. The same question that the *USTA II* Court had raised with respect to the “uneconomic entry” clause of the FCC’s impairment standard comes up with Mayo et al.’s proposed standard as well. In fact, the question now registers on an even broader scale than before. What would it mean for a single act—denial of UNE access—to “lessen competition” or “tend to create a monopoly?” Clearly what Mayo et al. have in mind is a reduction in supply of the retail service, from either existing or potential competitors. If that reduction in supply is the *sole, direct, and unavoidable* consequence of the act in question—and there is incontrovertible proof of such—then a conclusion of impairment might be justified. But, is that really likely to be the case?
17. As the *USTA II* Court has admonished the FCC, competitive sources of supply (of functional substitutes for the unbundled facilities at issue) must be taken into account. Variations in market conditions must also be taken into account. It is understandable that, given the choice of using UNEs available at TELRIC-based prices and functional substitutes (such as special access) available at market-determined or tariffed prices, a competitor might choose the former, since all other things being constant, that course

of action could lead to greater profit. But, is any *reduction* (but not elimination) of profit—in the event that UNEs are no longer available—grounds enough for supply to be curtailed and for CLECs to claim impairment? I believe the answer should be “no” and that any fair-minded observer (Mayo et al. included) would concur. Then, if UNE access is denied, how are we to know whether supply *would* be curtailed (both actually and prospectively) and, consequently, the quantity of service providers in the relevant market *would* be reduced to the point of monopolization without first knowing what else competitors could resort to when UNEs are no longer available to them.

18. In merger analysis, the application of the lessening competition standard is straightforward. Given the relevant market, all that a court or public policy authority has to determine is whether the combined market share of the merging firms is *likely* to increase concentration in the market and raise the risk of an exercise of market power. Even after adjusting for potential efficiency gains from the merger, the reviewing authority can use some rule of reason to predict whether the higher market share of the post-merger entity can put it in a place to exercise market power. That would still be a prediction of some likely and as yet unrealized outcome, but historical precedents, market knowledge, and other relevant details could inform that prediction to a considerable degree. That is decidedly *not* the situation that a reviewing authority would likely face when trying to determine whether the denial of UNE access *by itself* would (even in a probabilistic sense) lead to increasing concentration in the market and the exercise of market power.
19. One big difference is, of course, the probable significance of reduced supply because some potential competitors simply may not enter upon finding out that UNE access is no longer guaranteed. Those potential competitors, who are *not* already in the market, are simply not observable. Moreover, unlike a merger case, the reviewing authority may have little or no information—whether in the form of historical precedents or specialized market knowledge—about what that source of supply *could be* were UNE access to *remain* available. The rule of reason to apply here could quickly degenerate into sheer speculation and leave in its wake more disputes of the sort that have plagued the FCC’s earlier attempts to set an impairment standard.

20. To complicate that further, we have to consider the possibility of reduced supply by *existing* competitors. Again, the matter is not as simple as weighing the shifts in market concentration against probable efficiency gains and benefits to consumers, as would happen in a merger analysis. When faced with UNE access denial, existing competitors have a strong incentive to act strategically. If there are sizable profits to protect, competitors can be expected to hold out (through legal and economic means) as long as possible to preserve a UNE regime that helps to generate those profits in the first place. But, if that doesn't work, and competitors have to provision facilities for themselves or seek out alternatives like special access or even intermodal facilities, it is unlikely that their combined supply would be any lower even if having to pay market-determined or tariffed prices for alternative facilities ended up trimming (but not eliminating) their profits to some degree.

**2. Mayo et al.'s proposed impairment standard does not overcome the *USTA II* Court's complaint about open-endedness**

21. The open-endedness in the Mayo et al.'s impairment standard is discernible in this very issue. If, *arguendo*, by having to switch from UNEs to higher-priced special access,<sup>9</sup> *some* competitors were to fail and had to exit the market, what would that prove: a trend towards "less competition" or a weeding out of comparatively inefficient service providers who were only sustained by a particular regulatory policy? Moreover, if some of those exiting firms were to leave behind usable productive capacity of their own (e.g., some may be combining their own switches or other equipment with leased loops or transport facilities), what would happen to that capacity if it is not somehow acquired by the firms that remain?<sup>10</sup> Could supply reduction be alleviated, if not prevented entirely, by new, more efficient, entrants who re-acquire that abandoned capacity?<sup>11</sup> After all, it is the ability to restrict output, not the absolute number of

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<sup>9</sup> Tariffed special access prices may be higher than UNE prices, but the prices that competitors *actually* pay may be considerably lower if they purchase special access out of various discount plans commonly offered by ILECs. I return to this issue later in the Reply Declaration.

<sup>10</sup> To the extent that the abandoned capacity is fungible and not sunk, re-acquisition by new entrants is a distinct possibility.

<sup>11</sup> Exit by sub-efficient firms due to the denial of UNE access cannot, by itself, lead to supply reduction unless entry barriers are also somehow raised at the same time by such denial.

suppliers *per se*, that determines whether the market would feel the deleterious effects of monopolization.

22. All this is reminiscent of the kind of objection that the *USTA II* Court raised to the FCC's previous "uneconomic entry" standard and which, ironically, Mayo et al. claim to have addressed with their own proposed standard. There is simply nothing in that proposed standard that would allow any reviewing authority to know in advance—and with sufficient conviction—whether existing competitors are likely to act strategically or whether any competitor that has to exit the market following the denial of UNE access could have remained a viable competitor to other equally or more efficient service providers, *absent* a regulatory policy of UNE access. We simply have no knowledge of the relative efficiencies of the existing competitors in question, their *raison d'être* (and business models), or their ability to compete on a truly equal footing.<sup>12</sup>
23. The effectiveness of the impairment standard proposed by Mayo et al. requires a landscape surrounding the issue of the denial of UNE access that is considerably more cut and dried than exists in reality. For example, if there were no feasible alternatives to UNEs or no competitive sources to procure or self-provide those alternatives, and if all competitors (current and future) could be assumed to be equally efficient, then perhaps the lessening competition standard might have some relevance to the impairment inquiry. Absent that, however, there can be a very steep price to pay for declaring impairment (especially in a probabilistic sense) when there is none. This is the province of "error costs," first raised by the *USTA II* Court and also discussed by Mayo et al., to which I return later in my Reply Declaration.

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<sup>12</sup> It would be one thing if Mayo et al. were to narrow their standard to apply only to "equally or more efficient" competitors, but they do not. Moreover, it is not clear that such a theoretically appealing qualifier to their standard could even be implemented in practice, given that individual firms—particularly those unregulated—have superior information about their own cost circumstances than regulators and public policy authorities. The dilemma here is plainly whether *any* lessening of *competitors* (in the sense of a reduction in the number of competing service providers) is the same thing as the lessening of *competition*, and whether the former is necessarily a bad outcome that would result in a net loss of social welfare. The elimination of less efficient firms may shrink the supply side of the market to some degree (or it may not, if abandoned capacity is re-acquired by new entrants), but the competitive process—not to mention consumers—could be better off for it. In markets with economies of scale and scope, that outcome is to be expected.

24. Finally, it is necessary to recognize that unbundling was never intended to be a permanent state of affairs, and carriers in this proceeding endorse that view by advocating unbundled access to particular network elements as a necessary step toward becoming facilities-based providers. In imposing an unbundling obligation on incumbent facilities-based carriers, Sections 251 and 252 of the Telecommunications Act of 1996 (“1996 Act”) provided potential competitors a feasible path to entry without running afoul of large sunk costs and other entry barriers. By imposing on incumbents that duty to serve their retail-stage competitors, the framers of the law recognized the need for a push-start in an industry in which competition could never take hold if the only means of entry were entirely facilities-based—expensive, duplicative, and ultimately socially wasteful. However, it is widely accepted among service providers, consumers, and public policymakers alike that the ideal destination is one in which competition occurs among mature and secure facilities-based carriers that can each compete by dint of specialized assets (hence, product differentiation), innovation, and efficiency. In this scheme of things, there cannot be a *permanent* commitment to maintaining any particular path to entry that falls short of, or fails to fulfill, that goal, particularly as feasible substitutes for the incumbent’s facilities become available from either the incumbent or third party sources.
25. Again, unlike any merger analysis, we have an evolving landscape here, where the application of a lessening competition standard (as proposed by Mayo et al.) is likely to be extremely problematic. For example, one can only imagine the long and contentious efforts to measure a reduction in the inclination or “propensity” of *prospective* (rather than actual) competitors to enter the market or to determine at what point the course to eventual monopolization of the market gets irreversibly set.
26. A related set of imponderables arises when one accepts that economies of scale and scope are an entrenched feature of telecommunications networks. Even if the pure natural monopoly model no longer applies, it is hard to argue that the number of *viable* facilities or network-based competitors can, even in the best of circumstances, be “many.” Therefore, the dilemma that Mayo et al.’s reliance on potential harms (or the tendency to create a monopoly) alone presents is that of determining when exactly the

fine line is crossed between a sustainable market structure with a “few” but viable competing carriers and a market with an unacceptably high degree of concentration or monopolization. Clearly, at some point, the *quality* of competition (marked by the efficiency of the participants, price levels and variety of service offerings, consumer welfare outcomes, etc.) must be considered to be more important than the sheer *quantity* of competition. Ironically, the FCC’s “structural impediments to competitive supply” are far more attentive to that issue than the manner in which Mayo et al. propose to implement their re-worded impairment standard.

## **B. Revisiting Market Definition**

27. As noted by Mayo et al., in both *USTA I* and *USTA II*, the court has placed particular emphasis on a “sensible definition” of the relevant market for conducting impairment analysis. This is doubly significant when the impairment standard, as in Mayo et al.’s proposed version, relies heavily on antitrust principles embodied in the amended Section 7 of the Clayton Act. The *USTA II* Court noted on several occasions that, in defining the relevant market, the FCC may not take a too narrow view of the market. Specifically, it stated:

Though the Act does not necessarily require the Commission to determine “on a localized state-by-state or market-by-market basis which unbundled elements are to be made available,” *id.* at 425 (quoting Third Report and Order, 15 FCC Rcd at 3753, ¶ 122), it does require “a more nuanced concept of impairment than is reflected in findings ... detached from any specific markets or market categories.” *USTA I*, 290 F.3d at 426. Thus, the Commission is obligated to establish unbundling criteria that are at least aimed at tracking relevant market characteristics and capturing significant variation.<sup>13</sup>

28. In urging the FCC to take a more “nuanced” view of impairment, the Court laid the basis for what can reasonably be construed as a more expansive view of the relevant product market, namely, the inclusion in it of not merely UNEs but also facilities of like functionality, even if offered under different terms and conditions than UNEs. The FCC responded by establishing “granularity” criteria by which to define both the

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<sup>13</sup> *USTA II*, at 9.

product and the geographic contours of the relevant market. For example, the FCC stated:

[W]e will apply several types of granularity in our unbundling analysis, including considerations of customer class, geography, and service. In addition, within our discussions of specific network elements, we will also inject granularity into our analysis by considering types and capacities of facilities. While some have argued that granularity can only harm competition by making it more difficult for competitors to use UNEs, we find that additional granularity takes into account “the state of competitive impairment in [a] particular market,” and adds the needed “balance” to our unbundling rules that the courts have required. Indeed, doing a granular analysis permits us to distinguish situations for which there is impairment from those for which there is none.<sup>14</sup>

29. What emerged from the FCC’s granular approach to market definition and impairment analysis was a level of disaggregation not hitherto seen. Customers were classified as “mass market,” “small and medium enterprise,” and “large enterprise.” Transport and loop facilities were distinguished by loop types and capacity levels, with different impairment analyses directed at each. Geographic granularity led to the abandonment of the nation as a whole as the relevant geographic market; in fact, the pendulum swung to the opposite extreme as geographic markets were defined for transport as point-to-point or route-pairs and for high capacity loops as “customer locations” (i.e., commercial buildings). Relevant markets were, hence, defined at a “more granular” level than what many entities (including ILECs) believed to be appropriate, namely, metropolitan statistical areas, component economic areas, certain aggregations of wire centers, or other geographies that were certainly more expansive than those the FCC settled on.
30. Mayo et al. purportedly apply antitrust principles (specifically the Horizontal Merger Guidelines published by the U.S. Department of Justice and the Federal Trade Commission) to reach essentially the same market definitions as the FCC. For example, using the concept of “geographic demand-side substitutability,” Mayo et al. determine that, because customers of enterprise loops and transport cannot find feasible

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<sup>14</sup> *TRO*, at ¶118. Footnotes omitted.

substitutes *outside* the point-to-point routes over which they make calls, the geographic market cannot be any larger than those point-to-point routes (or, route-pairs) themselves.<sup>15</sup> At the same time, Mayo et al. rule out the feasibility of using supply-side conditions to further refine the market definitions because it is possible for different supply-side substitutabilities to lead to geographic markets of varying sizes. As they put it: “Both the Commission and the court must surely see the prospect of such a jumbled menagerie of geographic market sizes as administratively impractical.”<sup>16</sup>

31. As several decades of antitrust litigation experience demonstrates, market definition is not the exact science that a facile reading of, say, the Horizontal Merger Guidelines or even the Supreme Court’s discussion of *Brown Shoe Co.* might suggest. Even Mayo et al.’s application of antitrust principles to define the relevant market for impairment analysis of high capacity loops and transport contains errors that confirm that point.
32. Consider, first, the justification given for selecting individual route-pairs to conduct an impairment analysis for dedicated transport. Using the geographic demand-side substitutability criterion, Mayo et al. conclude that because a customer cannot seek alternative routes when the point-to-point route currently in use experiences a “small and non-transitory price increase” by a hypothetical monopolist provider of the route, that route itself must constitute the geographic market. This represents an overly narrow reading of what demand-side substitutability may mean in this context, perhaps because of some confusion over who may be the customer in question. It is certainly true that an *end user* at location A that wishes to call location B does not have the option to call a different location or call B *through* a different location, say, C when the hypothetical monopolist serving the A-B route raises the price of the call. However, if the customer in question is a *competitive carrier* that wishes to transport traffic over the A-B route (i.e., uses that route as a wholesale facility), then its option to seek out alternate or less direct routes (e.g., A→C→B) when the cost to transport from A to B rises may not automatically be foreclosed. It is, in fact, not uncommon for transport

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<sup>15</sup> Mayo et al., at ¶¶58-59.

<sup>16</sup> *Id.*, at ¶62.

routes to be not direct or point-to-point.<sup>17</sup> In these circumstances, any attempt to define the geographic market as strictly point-to-point route-pairs would be a mistake. In fact, the relevant market ought to contain all possible direct and indirect routes that could enable the CLEC to feasibly transport its traffic from one point to another. Within a wire center, exchange area, or MSA, there could be many such routes. The Mayo et al. approach would, more often than not, overlook this possibility and, contrary to the *USTA II* Court's admonition to not ignore alternative facilities deployment, define markets for dedicated transport too narrowly.

33. With a more expansive market definition (namely, one that accommodates alternative facilities), the probability of finding impairment by the Mayo et al. approach can be seriously diminished. This is true not merely for dedicated transport, but for high capacity loops as well. Although, at one time, an end user that wished to call another perforce had to establish a point-to-point connection through the public switched network with loops at both ends of the call, that is no longer necessarily the case. Intermodal alternatives like wireless (fixed or mobile) and VoIP have, to some degree, freed customers to establish alternate connections. This development alone would, again in keeping with the *USTA II* Court's admonition, call for a more expansive definition of the relevant market than customer-by-customer.
34. Finally, with thousands of transport route-pairs between central offices in the country and millions of commercial buildings to look at, the FCC also has to be mindful about the administrative feasibility of the approach to market definition and impairment analysis advocated by Mayo et al. Even if the resources of state regulatory agencies were to be deployed for fact-finding purposes, i.e., to gather data at a very granular level pursuant to impairment tests, it is the FCC that, in the end, must make impairment determinations at the desired level of granularity. Making those determinations can be a monumental task in any event, but the administrative costs are likely to be highest when the markets defined by Mayo et al. are employed. Given this consideration

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<sup>17</sup> For example, transport between two ILEC central offices or between an ILEC central office and a CLEC point of presence may be economical, for network and technological reasons, if it first went through another, intervening ILEC central office.

alone, there is something to be said for conducting bright-line tests of impairment at relatively higher levels of aggregation than those proposed by Mayo et al.

### **C. Conduct of Impairment Test**

#### **1. Mayo et al.'s analysis of error costs is flawed**

35. Mayo et al. acknowledge the inherent difficulty in implementing any impairment test when they state:

Specifically, any test, short of a full-blown, market-by-market inquiry of the nuanced barriers that exist in that specific geographic market and corresponding detailed analysis of the prospects for the lessening of competition that may result from the failure to provide UNE access will run the risk that “impairment” is found when, in fact, the truth (as judged with perfect information against the impairment standard) is “non-impairment.” Similarly, any administratively feasible test also runs some risk of a finding of “non-impairment” when the truth is “impairment.”<sup>18</sup>

36. Mayo et al. go on to suggest that the impairment standard they have proposed should lead to an impairment test such that “the Commission can be as confident as possible that its impairment test is both administratively feasible and minimizes unavoidable error costs.”<sup>19</sup> I agree in principle that where such a trade-off is unavoidable, every effort should be made to balance the two conflicting imperatives. However, I disagree strenuously with Mayo et al.'s follow-on position that:

The error costs associated with an impairment test are not symmetric. Specifically, the costs associated with establishing an impairment test with high false readings of non-impairment (when, in truth, impairment exists) are asymmetrically higher than the error costs associated with false readings of impairment when “non-impairment” exists. If a finding of non-impairment is made when in fact a CLEC is impaired, then competition will not occur, with the attendant higher prices and reduced service for customers. On the other hand if a finding of impairment is made when in fact the CLEC is not impaired, all that happens is that the CLEC can compete using either UNEs or its own facilities. The CLEC still has to pay the cost of the UNE it purchases, so the ILEC is unharmed. Indeed, given the choice between losing a customer to a

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<sup>18</sup> Mayo et al., at ¶63.

<sup>19</sup> *Id.*

CLEC with its own facilities or losing the customer to a CLEC that buys UNEs from the ILEC, the ILEC should prefer the latter.

37. This argument stands on its head the conventional wisdom in all testing procedures when a strong possibility exists for the type of trade-off in errors described above. For example, in the well-established field of statistical hypothesis-testing, it is recognized universally that any test may have to confront one of two possibilities: (1) the “null hypothesis” (initial presumption) is true but the test ends up rejecting it (often described as a “Type I error”) or (2) the null hypothesis is false but the test is not powerful enough to reject it (often described as a “Type II error”). In the present context, if the initial presumption is “impairment” (which was the starting point of tests prescribed by the FCC in the *TRO*), then a Type I error would arise if the impairment test found “non-impairment” instead. On the other hand, if that initial presumption was wrong to begin with, a Type II error would arise if the impairment test was unable to reject it in favor of a “non-impairment” finding. Clearly, the “benefit of the doubt” under a Type I error would favor the ILEC because the CLEC would be deprived, as a result of the finding, of the redresses to which it is entitled under impairment. On the other hand, a finding of impairment falsely (i.e., when, in fact, there is none) would give the benefit of the doubt to the CLEC, while imposing on the ILEC all the burdens that would come with an impairment finding.
38. I agree with Mayo et al. that “the error costs associated with an impairment test are not *symmetric*.”<sup>20</sup> That is, there is no *a priori* reason to believe that the cost of a Type I error (to the CLEC, the competitive process and society at large) in an impairment test would balance out the cost of a Type II error (to the ILEC, the competitive process, and society at large). However, I disagree with Mayo et al.’s almost cavalier dismissal of the seriousness of the Type II error (that would harm the ILEC) and exaggeration of the seriousness of the Type I (that would harm the CLEC). My objections are both statistical and economic.
39. In principle, tests such as these that can be reduced to simply stated statistical hypotheses can *control* for Type I error, i.e., hold the probability of such an error to not

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<sup>20</sup> *Id.*, at ¶64. Emphasis added.

exceed a pre-set and acceptable threshold. For example, it is commonplace to run tests of statistical hypotheses that allow for no more than a 5 percent probability of committing a Type I error.<sup>21</sup> Even if the null hypothesis is not stated in strictly statistical terms, it is still possible to set some sort of threshold that prevents Type I error from getting completely out of hand. For example, in criminal trials in American jurisprudence, the initial presumption of innocence is the starting point. If the innocence hypothesis is, indeed, true, then any conviction would constitute a Type I error—an undesirable outcome from any perspective. In such situations, familiar thresholds like “beyond a reasonable doubt” attempt to control for the size of the Type I error, if one occurs.

40. There is no known way, however, to control *directly* for Type II error. In statistical tests, the best that can be done to minimize the probability of Type II error is to increase the number of observations on which the test is based and/or to develop “powerful” test statistics. In legal terms, those may correspond to developing evidence as comprehensively as possible and employing forensic techniques or expert testimony that can reveal the underlying falsehood of the initial presumption as often as possible. It is instructive, therefore, that a statistical hypothesis test is called “more powerful” the more reliably it can minimize the probability of Type II, not Type I, error. Clearly, in setting out an implementable impairment test that begins with an initial presumption, the FCC (and all parties affected by that test) should demand nothing less than the most powerful test available.
41. As to the “error costs” themselves, the economic argument advanced by Mayo et al. for believing that the burden of those costs is likely to fall more disproportionately on CLECs (when a true initial presumption of impairment is rejected) than on ILECs (when a false initial presumption of impairment is not rejected) is plainly incorrect. With the relevant market properly defined, any impairment test should be able to control for the prospect of Type I error. I do not doubt that there is a cost associated

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<sup>21</sup> It is possible to eliminate that error altogether but at the cost of losing almost any precision whatsoever. Generally, lowering the Type I error probability (by choosing a higher threshold of “proof” for rejecting the null hypothesis or initial presumption) ends up heightening the prospect of greater Type II error (by making it more likely that the null hypothesis or initial presumption would not be rejected *even if false*). Thus, *some* toleration of Type I error is commonplace, if only not to allow Type II error to become a runaway problem.

with such an error—to affected CLECs, the competitive process itself, and consumers—but I believe that the magnitude of that error may, in principle, be controllable with a well-designed test.<sup>22</sup>

42. I am far more concerned with Mayo et al.’s conclusion that, in the event of a Type II error, “all that happens is that the CLEC can compete using either UNEs or its own facilities” and their prediction that since the CLEC still has to compensate the ILEC for the cost of the UNE, the ILEC is better off selling UNEs to the CLEC than selling nothing at all. This is plainly incorrect. When the CLEC leases UNEs at TELRIC-based prices from an ILEC even when feasible substitutes are available (i.e., that CLEC is not impaired), it imposes on the ILEC an opportunity cost equal to the revenue that is forgone from being compelled to provide UNEs at the lower price set by regulators. This is a burden that falls entirely on the ILEC and the “benefit” (such as it is) accrues entirely to CLECs, even those not equally or reasonably efficient that are now in a position to, in essence, arbitrage the difference between the artificially set and imposed UNE price and the prevailing market price of feasible substitute facilities. The fact that consumers may benefit also from end user prices that are artificially low as a result is itself a manufactured outcome of the inefficient competition that follows from maintaining the unbundling obligation even when CLECs are not impaired.
43. There is an additional reason for rejecting the Mayo et al. conclusion that, *despite non-impairment*, the ILEC may be better off selling UNEs than not. It is true that any sale of a UNE brings in revenue to the ILEC that is equal to the volume of the UNE sold multiplied by the TELRIC-based price set for it. However, the ILEC also incurs an economic cost that is the same as the revenue it brings in. Therefore, when UNE sales are ceased, the ILEC certainly loses the revenue that it could have earned but, more importantly, it also *avoids* the economic cost that it would incur to provide the UNE in the desired quantity in the first place. Therefore, the opportunity cost at issue here is definitely not the gross revenue from the sale of UNEs, but rather that revenue less the

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<sup>22</sup> The doomsday prediction that, in the event of Type I error, “competition will not occur, with the attendant higher prices and reduced service for customers” greatly overstates the case, particularly given that regulators and public policymakers have follow-up opportunities to take remedial actions, not to mention the access to those authorities and the courts that aggrieved CLECs clearly have.

economic cost. If that difference is zero or something less than zero, then Mayo et al. are incorrect in claiming that, *despite non-impairment*, the ILEC is better off selling UNEs than not.

## **2. The initial presumption of “impairment” is flawed**

44. One important issue that emerges from this discussion is critical but often overlooked in the public discourse over impairment standards and tests. In the *TRO*, the FCC established an initial presumption of impairment, rather than non-impairment, for the ILEC’s facilities it believed were critical to the success of competitors and competition itself. This starting point is of enormous significance, although that fact is sometimes not appreciated enough. The first point to note concerns where such an initial presumption places the burden of proof. By declaring that a CLEC is impaired (for the facilities in question) unless specific tests prove otherwise, the burden of proof clearly rests on the ILEC. In a criminal trial, this would be akin to starting with an initial presumption of “guilty” and placing the burden of proof entirely on the defendant. That would be contrary to the well-founded principles of American jurisprudence. But, more importantly, placing the burden of proof on the ILEC, rather than on individual CLECs, can have an overlooked economic significance. When the burden of proof is more appropriately on an individual CLEC (as it would be with an initial presumption of non-impairment), it would have to (1) demonstrate how specifically it is impaired without recourse to UNEs and (2) prove that it is worthy of such recourse by virtue of its being at least equally (or reasonably) efficient as the ILEC, and is being held back purely because of a lack of access to the incumbent’s facilities. It would also have to prove that it truly has no alternatives to draw upon because of its own peculiar circumstances or systematic barriers to access to such alternatives. There would be a transparency to this process that is lost completely when the shoe is on the other foot, i.e., when the ILEC—and the ILEC alone—must carry the burden of proof that its actions do not unduly handicap or impair any of its non-facilities-based competitors. This scheme of things clearly allows even inefficient or non-impaired CLECs to “fly under the radar” and holds the ILEC singularly responsible for ensuring the welfare of *all* competitors, whether worthy or not.

45. This fundamental asymmetry in the design of the initial presumption also has important consequences for the error costs that Mayo et al. discuss. As explained above, of the two types of error, Type I error is the more controllable. Hence, if the initial presumption were “non-impairment” rather than “impairment,” then Type I error would only arise if a CLEC were found to be impaired when, in fact, it was not. This would undoubtedly be a cost to the ILEC, but one that could be limited by suitably setting the evidentiary threshold. The Type II error in that situation would arise from finding no impairment when, in fact, the presumption of non-impairment was false. This would be a cost to the CLEC, but it is reasonable to expect that individual CLECs, faced with the prospect of such an error, would try affirmatively and diligently to reveal information about themselves that the FCC may not currently possess but which could aid the FCC greatly in arriving at the proper conclusions about impairment. Faced with having to minimize the prospects of Type II error, “flying under the radar” would more than likely yield to “truth in advertising.”<sup>23</sup>

### 3. Mayo et al.’s proposed impairment test is incomplete and one-sided

46. Even as they pay lip service to the putative soundness of the FCC’s approach to impairment tests (as spelled out in the *TRO*),<sup>24</sup> Mayo et al. propose to retain the FCC’s actual deployment triggers test but not its *potential* deployment triggers test. That is, Mayo et al. advocate an impairment test that relies solely on the finding of *actual* competition. The explanation given for this is couched entirely in terms of barriers to entry (and other structural impediments to competitive supply):

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<sup>23</sup> In vacating the FCC’s presumption of nationwide impairment for mass market switching and certain types of high capacity dedicated transport, the *USTA II* court may have created an opportunity to reconsider the initial presumption of impairment (at whatever level). Now that states are no longer available to make impairment determinations within their jurisdictions, the FCC may find it administratively more feasible and less costly to confine impairment inquiries only to occasions where CLECs can step forward with ample evidence to sustain their claims of impairment. Surely, offering *carte blanche* to CLECs cannot be an inviting prospect from an administrative standpoint, not to mention the enormous social costs that attend litigation and rulemaking on the impairment issue on the current scale.

<sup>24</sup> For example, Mayo et al. opine that “the *TRO* gives appropriate attention to these barriers [the structural impediments to competitive supply] and the *USTA II* court decision found nothing critical to say about this focus.” Mayo et al., at ¶66. Also, they assert that “the Commission’s findings with respect to impairment of DS-1, DS3, and dark fiber loops and transport are generally sound. And indeed, additional considerations from state proceedings, from the interview [of CLECs] process, and from publicly available data sources continue to support the Commission’s findings.” *Id.*, at ¶69.

The second approach is to perform a detailed assessment of the actual level of entry into a market. In certain circumstances, discussed below, the level of entry may be sufficiently high and sufficiently informative about prospective entry that one may conclude that the magnitude of entry barriers is low.<sup>25</sup>

Furthermore, Mayo et al. state:

To make this route-specific determination, the Commission adopted in the TRO a so-called “triggers test,” which simply assesses the magnitude of existing competitors’ entry. If the magnitude of entry is sufficiently robust and unequivocal in the triggers analysis, then the more detailed, complete assessment of the magnitude of entry barriers can be avoided. ... As we discuss below, there are significant economies of scope and scale in dedicated transport markets, and evidence of *possible* competition is not the same as evidence that the CLECs can overcome the barriers to entry. Therefore, in the absence of unambiguous information about the presence of *actual* competitors, the Commission must rely on proxies or surrogates that correspond to the size of the market and the barriers to entry faced by the CLECs.<sup>26</sup>

47. The argument advanced here for considering only actual competition, but not potential competitive entry, is not persuasive. First, consider the FCC’s reasons for specifying (in the *TRO*) both forms of competitive triggers:

In applying the self-provisioning trigger, we find that actual competitive deployment is the best indicator that requesting carriers are not impaired and, therefore, emphasize that this quantitative trigger is the primary vehicle through which non-impairment findings will be made. However, we recognize that this trigger identifies only the existence of actual competitive facilities and does not address the potential ability of competitive LECs to deploy transport facilities along a particular route. Therefore, when conducting its analysis, a state must consider and may also find no impairment on a particular route that it finds is suitable for “multiple, competitive supply,” but along which this trigger is not facially satisfied.<sup>27</sup>

48. The FCC’s reasons for considering both actual and potential competition are both categorical and clear. The same concern for barriers to facilities-based entry (and, in

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<sup>25</sup> *Id.*, at ¶66.

<sup>26</sup> *Id.*, at ¶68. Emphasis in original.

<sup>27</sup> *TRO*, at ¶410. Footnote omitted. Also see *Id.*, at ¶335 for a similar statement about the impairment test for high capacity enterprise loops.

particular, economies of scale) that underlie Mayo et al.'s position was clearly of concern to the *USTA I* Court as well, when it opined that higher average unit costs for a new entrant just starting out is not, in and of itself, evidence of an *insurmountable* barrier to entry if “multiple, competitive supply” can otherwise occur. In response, the FCC crafted an impairment test that accounted for not merely the competitive entry that had actually occurred but also the entry that was “possible” and could provide, or add to, evidence of multiple, competitive supply. Therefore, where Mayo et al. would attribute the absence of actual facilities-based entry to the presence of entry barriers, the FCC’s test in the *TRO* envisions a more comprehensive view based on asking whether those entry barriers are insurmountable.

49. This translates into the question: is the *absence* of facilities-based entry sufficient proof of the *impossibility* of such entry? The answer is “no.” Insurmountable entry barriers are not the only possible explanation for the absence of entry. The availability of UNEs at regulated, TELRIC-based prices may well prompt CLECs to pursue entry through the use of UNEs rather than the deployment of their own facilities. As a result, although the presence of facilities-based entrants is certainly evidence of non-impairment (as in Mayo et al.’s thinking), the obverse is not necessarily true, i.e., the absence of such facilities-based entrants *cannot* automatically be evidence of impairment. The advantage of having a “potential deployment” test in addition to an actual entry test is that this fact is properly recognized.
50. In laying out their test criteria for loops and transport, Mayo et al. adduce a series of cost figures for the placement of those facilities.<sup>28</sup> They also accuse ILECs of having conducted (during the state *TRO* proceedings) impairment analyses that

ignored or misrepresented the data the CLECs provided in response to discovery requests, used an inaccurate third-party database to identify buildings served by CLECs, claimed a CLEC providing one level of loop (e.g., DS-3) was able to provide all levels of loops, and ignored evidence that CLECs had loops to only a limited portion of a building.<sup>29</sup>

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<sup>28</sup> Mayo et al., at ¶¶71-72.

<sup>29</sup> *Id.*, at ¶75.

51. The reality, of course, is quite different. The claim of gross misuse by ILECs of CLEC-related data is greatly overblown and is not substantiated with actual instances of misuse. BellSouth, in fact, revised its loop deployment analysis and, when appropriate, *reduced* its estimate of commercial buildings that CLECs could serve without impairment, as new information came in from repeated discovery requests. Mayo et al. suggest that ILECs did not take into account the barriers that a CLEC may face when expanding its facilities, both inside a building and outside.<sup>30</sup> On the contrary, BellSouth abided by the FCC's requirement to consider several factors for the purpose of conducting a granular analysis. These factors took account of precisely the barriers that a reasonably efficient CLEC would face. Specifically, BellSouth took into account the intra-building cable and termination costs that a CLEC would incur to deploy and extend its own high capacity loop once it was inside a building. In addition, it fully accounted for trenching costs, rights-of-way fees, and other costs associated with extending fiber loops from CLEC nodes *to* target buildings.
52. Several of the costs cited by Mayo et al. for building structures and placing fiber to connect buildings or transport routes are very likely exaggerated or reflect poor engineering assumptions. BellSouth employed costs for these purposes that reflected the configurations and costs that reasonably efficient CLECs would incur (based on BellSouth's own understanding and experience of the costs of extending fiber).
53. Mayo et al. claim that high sunk costs and significant scale economies would prompt CLECs to install a substantial amount of dark fiber (spare capacity) and, in so doing, concede both sunk cost and first-mover advantages to ILECs with facilities already in place.<sup>31</sup> This claim simply does not pass muster. First, the fact that the ILEC absorbed sunk costs earlier in time than CLECs does not make them any less consequential. It is a misconception that sunk and other upfront costs are experienced only by CLECs. If, for some reason, an ILEC had to cease service provision today, the unrecovered portion of its sunk costs would remain that way. Second, CLECs are not constrained by the layout and design of the existing ILEC network. Not burdened by any carrier-

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<sup>30</sup> *Id.*, at ¶76.

<sup>31</sup> *Id.*, at ¶71.

of-last-resort mandate, CLECs may locate their switches and plan their loop and transport facility placements differently than the ILEC, and are not constrained by any obligation to build ubiquitous networks. In that matter, CLECs are more likely to be driven by current and future sources and locations of demand for services than by the locations of existing ILEC facilities that were responsive to sources of demand in the past. Third, CLEC networks are—or can be—forward-looking in another sense. Their unit costs to purchase certain equipment would be generally lower today and in the future (given declining costs for such equipment) than what ILECs incurred in the past. For all of these reasons, it is not at all clear that ILECs even have first-mover or absolute cost advantages over CLECs.

54. Among the more controversial issues in conducting impairment tests is the question of what exactly is proved by the presence of fiber-based collocations by the same CLEC at two ILEC central offices that form the ends of a transport route. Mayo et al. accuse ILECs of assuming that such collocations automatically signal an ability by the CLEC to instantly provide transport services (to itself or as a wholesaler) on that route.<sup>32</sup> They also contend that the “typical CLEC will build fiber to a [central office] in order to transport its own end-users’ circuits (and any switched access traffic) back to its [point of presence].”<sup>33</sup> This argument is unpersuasive. Exactly how the “typical CLEC” uses its fiber-based collocations would only matter if the impairment test were restricted, as in Mayo et al.’s proposed implementation of it, to actual provisioning of facilities by competitors. If instead, in accordance with the directions provided by the *USTA I and USTA II* Courts and the FCC in its *TRO*, an impairment analysis were to consider both actual and potential deployments of CLEC facilities, then the presence of a fiber-based collocated CLEC at an ILEC central office could absolutely be taken as evidence of non-impairment. Moreover, such fiber-based collocations are a minimum prerequisite for wholesaling; whether a CLEC actually engages in such wholesaling is, of course, a larger issue and a function of other considerations, including the strategic value—or lack of it—to the CLEC of wholesaling at a time ILEC transport facilities

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<sup>32</sup> *Id.*, at ¶81.

<sup>33</sup> *Id.*, at ¶83.

remain available at (below-market) TELRIC-based prices to would-be users. However, those additional considerations *cannot* be said to be relevant to any impairment analysis conducted in the manner directed by the courts and the FCC.<sup>34</sup>

55. Finally, after a tortuous effort to explain why the presence of even three competitors in the transport market “may be insufficient to ensure a competitive outcome,” Mayo et al. invoke the Merger Guidelines to argue that the required number of competitors to be at least four or perhaps even five.<sup>35</sup> The protracted explanation that follows (including an accounting of the Federal Trade Commission’s analysis of the change in concentration in 573 markets in which mergers had occurred) is so off-point and irrelevant to the determination of the appropriate impairment threshold (where no merger of any sort is involved) that it is hard to lend any credence to Mayo et al.’s conclusion that “mergers that reduce the number of significant competitors from five to four, and certainly from four to three, are likely to receive an antitrust challenge.”<sup>36</sup> Earlier in this Reply Declaration, I explained why the analogy between merger analysis and impairment analysis is tenuous at best.

#### **D. Special Access as Alternative to UNEs**

56. Both Mayo et al. and Dr. Selwyn dispute the notion that ILEC-provided special access, available at market-based prices, are a valid substitute for UNEs, and that special access should be counted as alternative facilities when conducting an impairment analysis. The common themes in their positions are:

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<sup>34</sup> Mayo et al. concede that a potential wholesaler could become an actual wholesaler if the “expected demand for capacity [were] great enough to offset scale diseconomies.” *Id.*, at ¶86. This concession is preceded by several claims that, in the state *TRO* proceedings, the ILECs failed to properly account for various costs to CLECs of wholesaling or self-supplying dedicated transport services. BellSouth’s transport impairment studies for those proceedings took detailed account of precisely the costs (e.g., of cross-connect equipment, power and space requirements for circuit equipment, etc.) that Mayo et al. are concerned about.

<sup>35</sup> *Id.*, ¶96.

<sup>36</sup> *Id.*, at ¶97.

- The elimination of UNEs would leave CLECs no option but to rely on higher-priced ILEC-supplied special access. This would leave those CLECs vulnerable to anti-competitive pricing practices for special access and, in particular, to price squeeze.<sup>37</sup>
- Special access services cannot serve as feasible substitutes for UNEs because, after they were granted pricing flexibility for their interstate special access services, ILECs have raised their prices for those services and earned very high rates of return on them.<sup>38</sup>

**1. ILECs cannot exert a price squeeze by manipulating special access prices**

57. The price squeeze bogey is distressingly familiar, and has been raised almost routinely by carriers that depend on certain ILEC-supplied wholesale services (such as switched and special access) which they then use to compete against ILECs in downstream retail markets. The aim almost invariably is to win pricing concessions from regulators, most commonly to force the price of the wholesale service in question down to its incremental cost. Doing so is, however, a vacuous exercise whenever (1) the wholesale service in question is *not* an “essential facility”<sup>39</sup> and (2) the ILEC has the latitude to price the wholesale service like any of its other services, and to include a contribution to the recovery of shared and common costs if it so wishes.
58. A vertical price squeeze is a form of anti-competitive pricing that can only be attempted by a vertically integrated firm that both controls an essential facility and competes in a downstream market for a product using that facility. The price squeeze occurs when the margin between the integrated firm’s retail price and the price of the

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<sup>37</sup> *Id.*, at ¶¶111-116. Selwyn, at 55-85. These parties assert that special access prices are uniformly higher in every state than those of UNEs, and those prices have risen in geographic areas that are no longer subject to price caps. There is nothing particularly surprising about the first claim because UNE prices are, by law, cost-based (or, more precisely, TELRIC-based) and special access prices are market-based and tariffed (although they are frequently much lower through volume and term contracts). As to the second claim, interstate special access services are either subject to price caps or not at the regulated company level, not in specific geographic areas. Thus, if they are higher than before in some parts of the country, it is because special access has been deregulated—even more freedom to price than would obtain under pure pricing flexibility within a price cap regime. It is unlikely for deregulation to occur without evidence of competitive offerings from non-ILEC sources.

<sup>38</sup> Both Mayo et al. and Dr. Selwyn also contend that special access represents a much larger proportion of the cost of wireline CLECs than of wireless carriers; hence, the likelihood of wireline competitors being impaired by the elimination of UNEs and the subsequent forced migration to special access is far greater.

<sup>39</sup> An essential facility or service is one that a dependent competitor needs specifically to compete with its supplier in a downstream market, but cannot economically reproduce it itself or acquire it from alternative sources.

essential facility it sells to its retail competitors is less than the *difference* between the incremental cost of the retail service and the incremental cost of the essential facility. In these circumstances, an equally efficient competitor cannot purchase the essential facility and still compete in the retail market.

59. There are two issues to consider here: the *incentive* and the *ability* to attempt a price squeeze.<sup>40</sup> If the vertically integrated firm could employ the price squeeze as a device to drive its retail competitor from the market and, thereby, monopolize the retail market, then it would have an incentive to attempt it. That would be not unlike predatory pricing, where initially the firm would have to take losses which it would hope to recoup eventually by raising retail prices to monopoly levels once it had monopolized the retail market. On the other hand, it would have no such incentive if the expectation of recovery were to prove unjustified. For example, even though the price squeeze *could* eliminate retail competitors temporarily, the productive capacity those competitors would leave behind could be acquired (or re-acquired) and put to quick use by re-entering or newly-entering competitors once the integrated firm started to earn monopoly profits. This would prevent the firm from recovering its initial losses; foreknowledge of this possibility would greatly dampen any incentive to attempt price squeeze in the first place. Moreover, a *regulated* integrated firm would have an even less incentive to attempt a price squeeze if it knew in advance that future recoupment through monopoly prices would never be allowed by regulators.
60. Finally, attempting a price squeeze may not even be economically worthwhile and may leave the firm bereft of any incentive to do so. Economic theory tells us that a profit-maximizing monopoly in an upstream wholesale market can gain *absolutely no advantage* by trying to monopolize a competitive downstream retail market (using price squeeze or other tactics) *if* the retail service uses the wholesale service *in fixed proportions*, i.e., the number of units of the wholesale service needed to produce a unit

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<sup>40</sup> This issue is of considerable interest to Dr. Selwyn as well (e.g., Selwyn., at 55). Of course, for him, the simple fact that special access service is priced above “economic” cost is sufficient to conclude that a price squeeze is underway.

of the retail service is fixed.<sup>41</sup> Even if the vertically integrated firm truly controls an essential facility—it cannot leverage that monopoly power in the wholesale market to become a profit-maximizing monopoly in the downstream retail market. One example of this is the provision of a retail local exchange service using a loop (wholesale service) in fixed proportions; another is the provision of retail long distance service using switched access (wholesale service) in fixed proportions.<sup>42</sup> In these circumstances, *even if* the firm wants to monopolize the retail market in which it operates, it would *not* gain anything more from trying to do so through a price squeeze than if it were to just compete in that market.

61. The *ability* to conduct a price squeeze is also circumscribed by a number of factors. First, without a true essential facility, that strategy simply would not work. Pricing a wholesale service above its incremental cost is *not* sufficient to enable a price squeeze. Second, there are already provisions in place that are designed to prevent price squeeze. One such is the practice of imputation which constrains the integrated firm to set its retail service price no lower than the incremental cost of the retail service plus the contribution from the wholesale service or essential facility (i.e., the margin between the price paid by the dependent competitor for that facility and its supplier's incremental cost to provide it). Other imputation-like provisions also have the same effect. For example, Section 272(e)(3) of the 1996 Act requires the ILECs to supply wholesale services to its affiliates on exactly the same terms as those offered to its dependent competitors. Also, the resale provision of Sections 251 and 252 of the 1996 Act robs any wholesale service of the essential facility character, even if it has one in the absence of resale. Resale does so because, in meeting its obligation to resell the

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<sup>41</sup> See W. Kip Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust*, Second Edition, Cambridge, MA: MIT Press, 1996, at 235-236.

<sup>42</sup> Dr. Selwyn contends that “the use by an IXC of special access to provide ... interexchange (i.e., *non-local*) services teaches nothing, one way or the other, regarding the ability of CLECs profitably to provide enterprise local services via special access, and any inference that the RBOCs attempt to draw to that effect is without basis and without merit.” Selwyn, at 57. On the contrary, as noted above, economic theory tells us to expect the same result when special access is used to provide local services as when it is used to provide long distance services.

retail service, the ILEC automatically gives up any control over the underlying wholesale service.

62. The most effective way to destroy the possibility of a vertical price squeeze is, of course, to lower or eliminate entry barriers. The best indicator of that, in turn, is the presence in the relevant market of both intramodal and intermodal competitors. The 1996 Act removed whatever vestigial legal, regulatory, or economic barriers to entry existed for local exchange service, and state regulatory authorities, the Justice Department, and the FCC ratified the opening of U.S. local exchange markets in their Section 271 decisions. By any account, whether it is such FCC ratification or the grant of special access pricing flexibility by the FCC, there is more (and irreversible) competition in the local exchange today than ever before.

**2. Higher ILEC special access price increases and supposedly high returns on special access do not connote anti-competitive behavior**

63. Both Mayo et al. and Dr. Selwyn complain that in the post-pricing flexibility era, ILECs have raised their special access prices and earned “staggering rates of return” on special access services.<sup>43</sup> The suggestion is that ILECs have only succeeded at doing so because they possess sufficient market power in special access services, and that elimination of the UNEs would create an untenable situation with hapless CLECs at the mercy of those ILECs. It is hard to take these charges seriously for a couple of reasons.
64. First, despite the allegedly rising special access prices, there is evidence of widespread use of special access in local exchange markets by CLECs, sometimes to serve customer locations in combination with UNEs and, at other times, to do so without any accompanying UNEs whatsoever.<sup>44</sup> It is difficult to believe that CLECs that would consider themselves impaired without UNEs remaining available can, even now, use special access exclusively to carry or deliver local exchange traffic and do so without any evidence of economic loss. Given that market-based special access prices (as

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<sup>43</sup> See, e.g., Mayo et al., ¶116.

<sup>44</sup> See Reply Affidavit of Shelley Padgett, on behalf of BellSouth, in this proceeding, Table 1 and the following discussion.

tariffed) are above UNE prices, it is tempting to conclude that about the only effect of using special access in place of UNEs, other things being equal, would be to reduce the profitability of serving customers. That may or may not be so; however, the large users of special access often receive significant discounts (through term or volume contracts), which clearly facilitate more profitable operation by CLECs. The popularity of these discount plans—and CLEC commitment to them—signifies that the actual tariffed prices for special access are of little consequence to CLECs.<sup>45</sup> The hyperbolic analysis of Mayo et al. and Dr. Selwyn simply does not square with everyday CLEC reality (and, more importantly, CLECs' self-interested choices).<sup>46</sup>

65. Second, the astonishing claim that ILECs are earning very high (and, by implication, undeserved) rates of return on special access services is essentially meaningless from an economic standpoint.<sup>47</sup> This claim relies on measures of fully allocated book costs of services that are produced using substantial shared and common assets, thus entailing a very high proportion of fixed and common costs and significant economies of scope. It makes no economic sense at all to equate ARMIS regulated rates of return for special access with economic profits. In fact, the tendency of Dr. Selwyn, in particular, to use regulated rates of return repeatedly like a cudgel has been noted and criticized before. For example, Alfred Kahn and William Taylor stated two years ago:

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<sup>45</sup> As if anticipating this line of argument, Mayo et al. argue that the “only valid comparison is for special access and UNEs purchased under similar terms and conditions.” Mayo et al., ¶110. In other words, they would rather see a comparison of month-to-month prices for both special access and UNEs. But, that makes no economic sense at all. The CLEC's opportunity cost of using UNEs (even at month-to-month TELRIC-based prices) is not the tariffed special access price, but rather the discounted price at which it can secure an equivalent volume of special access. Mayo et al. may characterize term and volume plans as “risky” to CLECs, and even denigrate those plans as a form of exclusionary pricing, but CLECs are revealing with their everyday choices (particularly at locations where they use special access exclusively despite the availability of UNEs) that they do not think that way.

<sup>46</sup> As if to blunt the impact of those CLEC choices, Mayo et al. reel off a litany of “reasons” for what they clearly regard as aberrant or compromised CLEC behavior. See Mayo et al., ¶119. That is neither here nor there. From the standpoint of an impairment standard, the courts and the FCC have said—in various ways—that the best evidence of non-impairment is that competitors can use alternative facilities profitably. By whatever means they have done so, and whatever their compulsions have been, the very fact that they have done so is incontrovertible.

<sup>47</sup> See, e.g., Dr. Selwyn's claim: “For 2003, the four RBOCs reported an average rate of return on interstate special access services of 43.7 %, with all but Verizon reporting earnings topping 60%. Qwest, for example, which had reported special access earnings of 68.1% for 2003, has already implemented two separate – and substantial – rate hikes in 2004.” Selwyn, at vi. Surprisingly, Mayo et al. cite the same average rate of return figure without any further reflection or analysis. Mayo et al., at ¶116.

High or increasing rates of return calculated using regulatory cost assignments for interstate special access services do not in themselves indicate excessive economic earnings reflecting the exercise of market power. Indeed, regulatory rates of return for geographic subsets of single services in multi-product, multi-geographic firms bear no relationship with economic profits and thus can serve no useful purpose in determining whether pricing flexibility has or has not been excessively permissive. ILECs are integrated multi-regional firms and rely on an integrated regional management structure employing the regional physical and human resources to provide a multiplicity of services. The cost allocations required render such a calculation meaningless.<sup>48</sup>

Professor Kahn and Dr. Taylor went on to note that noted economists for AT&T (the same company represented here by Dr. Selwyn and in part by Mayo et al.) decried the use of rates of return based on accounting allocated costs as “economically irrational” when they appeared before Massachusetts regulators in 1992 to request relief from rate of return regulation for AT&T’s intrastate services. Those economists noted, as did Professor Kahn and Dr. Taylor, that allocations of non-incremental costs among services (or categories like regulated and unregulated, interstate and intrastate) may be an expedient for calculating accounting rates of return but, not being cost-causative, those allocations do not lead to any measure of economic profits.<sup>49</sup>

66. An accompanying allegation is that ILECs have raised special access prices in the post-pricing flexibility era. If this is indeed the case, then it would be hard to explain the impressive gains in both special access revenues and special access volumes (quantities of circuits) in recent years.<sup>50</sup> In point of fact, there is evidence that ILECs’ average revenue per circuit (or per voice grade equivalent) has actually declined, signifying, if anything, the contrary of what is alleged. This clearly shows that, regardless of the level—and increases in that level—of tariffed prices, what matters in the end is the price that a CLEC actually pays for special access. Increasingly steep discounts in

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<sup>48</sup> Declaration of Alfred E. Kahn and William E. Taylor, *In the Matter of AT&T Corp Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM No. 10593, 2002.

<sup>49</sup> See also W. J. Baumol, M. F. Koehn, and R.D. Willig, “How Arbitrary is ‘Arbitrary’? – or, Toward the Deserved Demise of Full Cost Allocation,” *Public Utilities Fortnightly*, 120(5), 1987, at 21.

<sup>50</sup> See UNE Fact Report, at I-8 to I-10 and III-26.

ILEC special access prices show that special access users have, in effect, paid less in recent years.

### **E. Intermodal Alternatives**

67. As both the courts and the FCC have recognized for some time now, intermodal competition is every bit as important to the issue of UNEs and impairment as are intramodal competition (among ILECs and wireline CLECs) and special access. Predictably, Mayo et al. attempt to minimize the significance of this type of competition, arguing that wireless and cable cannot yet replace services that are provided over DS-1, DS-3, and dark fiber loop and transport facilities.<sup>51</sup> This argument, too, fails going by Mayo et al.'s own dictum, that "there could be non-impairment if customers themselves are able to procure such services directly from providers of wireless or cable services."<sup>52</sup>
68. *Individual* wireless connections cannot possibly replace the traffic that is carried over high capacity facilities; however, that is not the proper comparison, keeping in mind that those facilities aggregate calls for point-to-point transmission, rather than serve as pathways for individual calls. If occupants of a commercial building were all equipped with wireless connections, the *totality* of those connections could certainly be viewed as a feasible alternative to high capacity facilities. Moreover, VoIP connections (which Mayo et al. do not discuss) are now increasingly capable of replacing conventional high capacity loops that carry both voice and data traffic to customer locations in commercial buildings.<sup>53</sup>

### **F. The Financial Vulnerability of CLECs is Overblown**

69. The rising chorus of apprehension among CLECs about what could happen if UNEs were no longer available at TELRIC-based prices is clearly evident in this proceeding.

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<sup>51</sup> Mayo et al., at ¶¶122-129.

<sup>52</sup> *Id.*, at ¶123.

<sup>53</sup> Mayo et al. note that, under their impairment test, at least three competitors should actually be providing service. They are willing to count the wireline CLEC (though it is not clear why there cannot be more than one) and a cable provider, but still find themselves short of the goal of three competitors by one. Ironically, VoIP is increasingly fitting that bill, as are wireless technologies like Wi-Fi, WiMax, EvDO, and EvDV.

Statements made of the financial dire straits that CLECs supposedly find themselves in today (even *before* the FCC has issued its revised unbundling requirements) are beginning to sound almost apocalyptic. Consider, for example, Mayo et al.'s assertion:

[A]ny dispassionate assessment of the CLEC industry makes the vulnerability of this entire competitive fringe abundantly clear. Evidence of the significant difficulties facing the CLEC competitive fringe include a variety of factors such as the high number of bankruptcies and exits that have befallen the CLEC fringe firms, the difficulties these entities face in raising capital, and the current financial position of the CLECs, as revealed through the interview process and publicly available information.<sup>54</sup>

70. The claim that *any* dispassionate analysis would reach such depressing conclusions is hard to take seriously. Quite apart from accounting for both the failures *and* the successes experienced by competitors who have entered markets opened by the 1996 Act, a true dispassionate analysis would also explain *why* failures are commonplace in the early churn of a newly-competitive industry and *why*, in the end, the relatively fewer—but no less compelling—successes present a more enduring picture of that industry. In discussing the “vulnerability of the CLECs,” Mayo et al. have little to say about the successes in making their pitch about how the health of the CLECs collectively is not good and could get much worse if access to UNEs at TELRIC-based prices were to be denied.
71. The “high” number of CLEC bankruptcies and exits recorded through 2004 that Table 1 of Mayo et al. claims to document must be understood in the historical context in which they occurred. Local exchange telecommunications markets in the U.S. account for over \$127 million annually in revenue,<sup>55</sup> and were generally off-limits to all but incumbent carriers until after the passage of the 1996 Act and subsequent federal and state rulemaking to facilitate competition.<sup>56</sup> In the early flush of this market-opening event, competitors of all stripes attempted to enter local exchange markets to get their own pieces of the pie. They came in with different technologies and business practices,

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<sup>54</sup> Mayo et al., at ¶34.

<sup>55</sup> FCC, *Statistics of Communications Common Carriers*, 2003/2004 Edition, Table 5.19.

<sup>56</sup> Some states enacted local exchange competition laws even before the 1996 Act.

different business models, different levels of managerial expertise, different sources and depths of funding, and different degrees of engagement with incumbent carriers. This very heterogeneity among competitors certainly contributed to the early vitality of the post-competitive local exchange markets but, predictably, it also presaged the fallout and failures that Mayo et al. document. That was hardly a surprising development. History tells us to expect precisely the churn experienced on the supply side of this newly-competitive industry has experienced so far.

72. Bankruptcies are the inevitable outcome of intense competition. When competitors are heterogeneous and reliant on risky strategies (both technologically and financially), there can be no ultimate guarantee of survival. Yet, for all the failures faithfully recorded by Mayo et al., there are also comparative success stories that are *not* documented by them. Most of the latter tend to be mainly or fully facilities-based, unlike the majority of failures that tended to favor entry strategies based on ILEC-supplied UNEs. However, bankruptcies are, in themselves, not the same thing as economic “death,” and a quick glance at Mayo et al.’s Table 1 reveals that many of the CLECs listed there have since reorganized and are still in business, perhaps in stronger financial health than before. Even “exits” may be less permanent than they appear because the productive assets they left behind (on most occasions, switches) have been acquired by new entrants, and the overall productive capacity has not seen the significant reduction that an uncritical look at Mayo et al.’s Table 1 may suggest.
73. To keep the proper perspective on the industry developments cataloged by Mayo et al., it is important to remember that the opening of local exchange markets also coincided with one of the greatest boom times in U.S. commercial history. The advent of the Internet and the new communications technologies spawned alongside it had the imagination of the entire country—entrepreneurs and consumers alike—in its grip. Considering the exuberance with which venture funding and other financial support poured into the telecommunications industry, it was almost impossible *not* to attempt some form of entry. Various business models—some legitimate, others highly questionable—also drove such entry, helped along by both the general economic boom and opportunities for regulatory arbitrage set up by mismatched regulations that are

unavoidable in a rapidly evolving industry.<sup>57</sup> In an industry with high minimum viable scales of operation, no one could have guaranteed that large numbers of those entrants—whether partially or fully facilities-based—would have survived. This was a sorting out on a rather large scale, as less efficient competitors or those with dubious business plans or abilities were weeded out, and the more efficient and able among them survived. To expect any other outcome in a newly-competitive industry would be naïve. But, to ask for more of the same by maintaining current unbundling rules when they are not justified would be downright disingenuous.

74. Mayo et al. assert that market capitalizations (or book values) of CLECs as a group have fallen to about 5 percent from those heady days of undiluted entry and expansion. In an efficient capital market, those market capitalizations are supposed to reflect the value that firms are likely to produce over time. With almost no prior experience with the new communications technologies and burgeoning telecommunications markets to draw upon, capital markets apparently did not know what to expect. It is well known that even entrants with no expectation of generating positive cash flows (let alone economic profits) for a long time were able to attract significant financing. The stock market decline in 2001 and beyond—frequently described as a “market correction” for the speculative bubbles that had built up over the previous years—automatically pulled those bloated market capitalizations closer to reality and the over-generous sources of financing dried up. These developments undoubtedly put a severe financial strain on many entrants, forcing them to either exit or seek bankruptcy protection in the process. With the restoration of a semblance of normalcy and, more importantly, sanity to the capital markets, new entrants in telecommunications markets now better understood the path to survival and even prosperity. It is hardly surprising, then, that the number of

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<sup>57</sup> A clear example of this was the mushrooming in the 1999-2001 period of CLECs that existed solely to deliver Internet-directed traffic to Internet service providers (“ISPs”) and to collect significant amounts of termination revenue from ILECs originating such traffic. These “CLECs” rarely, if ever originated traffic in the reverse direction. The FCC’s efforts to the contrary notwithstanding, a large number of states declared erroneously that the traffic being carried was “local,” not inter-exchange, and therefore subject to reciprocal compensation arrangements set up for local voice traffic. Moreover, the ISPs and the CLECs serving them were shielded from paying access charges because of the so-called “ESP exemption” that those carriers claimed for themselves. For a while, entry into local exchange markets was driven by the regulatory arbitrage opportunities available to this segment of entrants, and clear cases of fraud followed in its wake. Fortunately for telecommunications competition, this bonanza proved merely ephemeral, although permanent inter-carrier compensation rules have still to be determined.

facilities-based CLECs was reduced by nearly 80 percent between 2000 and 2004, as Mayo et al. report.<sup>58</sup> What has to be clearly understood in all this is that even established incumbent carriers suffered large losses in market capitalizations and stock prices. Therefore, the unfavorable outcomes for CLECs can hardly be attributed to any exercise of market power, sabotage, or worse by ILECs. This was a form of natural selection that occurs in any newly-competitive industry, except the evolutionary pains and gains were magnified by the peculiar—but hardly unprecedented—speculative sentiment in the financial world of the late 1990s.

75. Capital market and financing difficulties may have been a problem for many non-performing CLECs, but not definitely not all. Despite the litany of bankruptcy stories coming from CLEC quarters and the lowering of CLEC credit ratings discussed by Mayo et al.,<sup>59</sup> several CLECs have quietly secured substantial investment financing in recent months. Clearly, the capital markets are paying attention to the growth prospects of these success stories, and changes in the offering to current unbundling rules are not scaring off their backers and funding sources. The following table summarizes the financing—in some cases, debt financing—secured by some well-established CLECs over the past year or so.<sup>60</sup>

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<sup>58</sup> Mayo et al., at ¶36.

<sup>59</sup> *Id.*, at ¶¶40-41.

<sup>60</sup> The data are compiled from company press releases. This does not represent a comprehensive list of CLECs that have secured financing.

CLEC	Financing Secured (\$ millions)
Time Warner Telecom, Inc.	440.0
XO Communications, Inc.	197.6
US LEC Corp.	150.0
Global Crossing	100.0
NewSouth Communications	62.5
DSL.net	30.0
Xspedius Communications	24.5
Florida Digital Network	20.2
Mpower Communications Corp.	17.5

76. In the ultimate analysis, it is safe to predict that many competitive entrants in U.S. local telecommunications markets *will* fail for one or the other reason, but a core group of efficient and innovative service providers among them will survive and grow. Despite the weeding out of a large number of entrants—some facilities-based, others not—over the past few years, CLECs as a whole (particularly when intermodal competitors are included) have served ever-increasing shares of the telecommunications market (whether measured by access lines or revenues). In 2002, ILECs experienced unfamiliar negative growth in access lines for the first time in their long history. Whether that happened because the slimmer “competitive fringe” began to really get its act together or regulatory policy (such as UNE availability, particularly as platforms, at TELRIC-based prices) created new entry opportunities, the fact remains that U.S. local telecommunications markets are now irreversibly open to competition, and future unbundling relief may redirect that competition somewhat but not handicap—or worse, cripple—it.

## **G. QSI Consulting's Impairment Analysis**

77. QSI Consulting's contribution to this proceeding<sup>61</sup> is not so much an impairment analysis (e.g., unlike Mayo et al., it breaks no fresh ground on impairment standards and tests) as an ill-concealed attempt to rebut ILEC filings in the state *TRO* proceedings on the extent of non-impairment (at the level of customer locations and transport routes) within their jurisdictions. The authors of this report compile ILEC filings from only 14 states and then apply a series of their own criteria (with little supporting documentation to justify them)<sup>62</sup> to reduce as much as possible the number of customer locations and transport for which ILECs had claimed in state proceedings to have found non-impairment. In keeping with the general tenor of impairment "analyses" conducted by CLECs or their economists, QSI Consulting disregard entirely the results of the potential deployment triggers analysis that the ILECs had conducted at the direction of the *TRO*.
78. More seriously, the authors of the report use this opportunity to reiterate their own flawed positions that first surfaced during the state proceedings. For example, the report removes customer locations from ILEC filings in instances that CLECs "do not have full building access."<sup>63</sup> It is unclear what is meant by having "full" building access because the FCC certainly never expressed in the *TRO* any requirement for such a specific form of building access. However, what is meant by that term can perhaps be gleaned from the testimony of one of the QSI authors (Gary Ball) who served as a CLEC witness in several state *TRO* proceedings. Testifying in such a proceeding in Georgia, Mr. Ball wrote:

In a multi-tenant building, two CLECs may have provisioned fiber-optic facilities to serve one customer each, while the rest of the building is being served solely by the ILEC. Even though there are two competing loop facilities into the building, an ILEC request that the trigger is satisfied for the entire building, or even the two customers served by the CLECs, would be incorrect, as no customer location within the building

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<sup>61</sup> QSI Consulting, Inc., *Analysis of State Specific Loop and Transport Data: Impairment Analysis*.

<sup>62</sup> For example, sweeping criteria like "The ILECs misrepresented or ignored CLEC data" or "Reliance upon inaccurate third party database" are employed.

<sup>63</sup> QSI, at 13.

is being served by the facilities of two or more competing providers. The key distinction in this example is that the customer location, which is the endpoint of the loop per the FCC, is a subset of a building location in a multi-tenant environment.<sup>64</sup>

Mr. Ball drew an explicit distinction between a customer location and a building with multiple tenants, even though nothing in the *TRO* or instructions given by the FCC to conduct either the trigger test or the potential deployment test made that distinction. To the contrary, there was ample evidence that, in the context of the enterprise market, the FCC used the term “customer location” in the same sense as a “multiunit premises location” or building with multiple tenants.<sup>65</sup> The “full building access” to which QSI refers could conceivably derive from the same misinterpretation that a customer location does not imply the building as a whole. Definitional issues aside, however, it is worth noting that in BellSouth’s study of building-level impairment, the cost to extend loop fiber *within* a commercial building was taken into account fully. Of course, the FCC has afforded CLECs who deploy fiber to a given commercial building access to incumbents’ “inside wire” at multi-tenant buildings as well. This “inside wire” may be used to access end users in any part of the building to which those facilities extend.<sup>66</sup> Indeed, the FCC noted AT&T’s supposed “fiber to the floor” limitation<sup>67</sup> and crafted its requirements accordingly. Consequently, the FCC has already addressed this issue and supposed problems with “full building access” may be ignored.

79. Any analysis of potential deployment, or consideration of the potential deployment tests conducted by the ILECs during the state proceedings, is conspicuous by its absence from the QSI report. That absence may, again, be explained by the position taken by Mr. Ball in the state proceedings, where he argued that the potential deployment test was irrelevant whenever the self-provisioning triggers analysis failed

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<sup>64</sup> Direct Testimony of Gary Ball, filed January 30, 2004, at 20, in Georgia Public Service Commission, *In re FCC’s Triennial Review Order Regarding the Impairment of High Capacity Enterprise Loops and Dedicated Transport*, Docket No. 17741-U. The hearing in this proceeding was suspended following the *USTA II* decision.

<sup>65</sup> See, e.g., *TRO*, ¶298, ¶303, and fn. 860.

<sup>66</sup> *Id.*, ¶¶343-358.

<sup>67</sup> *Id.*, fn. 1041.

to show the presence of the requisite number of CLECs (either in a commercial building or a transport route). Moreover, he argued that, in that situation, the potential deployment test could only be justified if there “was something unique to this particular customer location or this transport route that rebuts the national finding of impairment.”<sup>68</sup> This was, of course, a complete misinterpretation of the FCC’s purpose for conducting a potential deployment test.<sup>69</sup>

80. As it stands, the QSI report has limited utility, if any. It neither contributes any new thinking to the ongoing debate over the impairment standard nor presents any useful and new information about impairment, even if done the way directed by the *TRO* prior to the *USTA II* decision. It almost certainly cannot inform the impairment procedures to be followed in the future. With no useful way to verify the calculations in the report, there is no information of any value to glean from it even retrospectively. At any rate, the QSI report’s findings, such as they are, will almost certainly be irrelevant to any impairment analysis conducted once a revised impairment standard emerges from this proceeding.

### **III. HIGH CAPACITY LOOP IMPAIRMENT ANALYSIS**

#### **A. Goal of Analysis**

81. The high capacity loop impairment analysis I have conducted on behalf of BellSouth is based on a simple principle: if, taking into account (1) all of the network and non-network costs likely to be experienced by a reasonably efficient CLEC over a 10-year period and (2) the revenue likely to be available to the CLEC over that period, a net present value (“NPV”) analysis reveals that the CLEC is likely to be profitable over that period, then that CLEC cannot be impaired. This analysis is conducted one commercial building at a time, and all the data needed for the NPV analysis are collected at the building level, although certain network costs, expressed on an engineering unit basis, apply to all buildings within a state.<sup>70</sup> The underlying

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<sup>68</sup> Direct Testimony of Gary Ball, fn. 64, *supra*, at 38.

<sup>69</sup> See, e.g., *TRO*, ¶335.

<sup>70</sup> Those costs may—and do—vary across states.

assumption for this analysis is that the CLEC must be reasonably efficient in terms of the costs it experiences to deploy loops.<sup>71</sup>

82. There is a second and, in some respects, even more important goal of this analysis. While the NPV methodology described above is useful for identifying all of the customer locations (buildings) to which efficient CLECs could profitably deploy their own high capacity loops,<sup>72</sup> an important insight can be gained by identifying how the most important demand and supply-side drivers of NPV (the revenue available to a CLEC and the distance over which the nearest CLEC would deploy a loop, respectively), interact. NPV varies directly with the former (available revenue) and inversely with the latter (distance); therefore, a trade-off or sensitivity analysis can be conducted that shows how different combinations of the two drivers can affect the NPV. Specifically, I conduct a breakeven analysis which searches for alternative combinations of the two drivers that result in the CLEC at least breaking even over the 10-year period, i.e., experiencing an NPV of zero or marginally more. The breakeven analysis can be an appropriate basis for determining whether *any* efficient CLEC, if it knew the available revenue and the distance, would find it profitable (and, therefore, be non-impaired) to deploy its own high capacity loop.

## **B. Information for Conducting Analysis**

83. Conducting an analysis of CLEC impairment (or non-impairment) in deploying high capacity loops to commercial buildings requires careful attention to four broad categories of information:
- network costs of extending fiber from (1) the network or node of the CLEC nearest (in distance) to a building to the building itself and (2) the point of entrance to points within the building;
  - non-network costs (such as retailing, selling, and overhead costs) incurred to extend fiber in this manner;

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<sup>71</sup> The costs at issue are not necessarily the historical costs of individual ILECs (such as BellSouth) that have deployed high capacity loops to commercial buildings in the past.

<sup>72</sup> This exercise was, in fact, carried out for the state *TRO* proceedings.

- annual revenue on offer to the CLEC extending fiber (i.e., some share of the annual telecommunications spending by end users in the building); and
  - critical parameters including (1) share of building revenue assumed to be captured by the CLEC, (2) depreciation rate, (3) weighted average cost of capital and other financial/tax parameters, (4) customer churn rate, (5) period for NPV analysis, and (6) end-of-period salvage value.
84. The network costs include the fixed capital expenditures (“CAPEX”) that need to be committed at the point of installation. These include the costs of cable (sized appropriately to meet demand and maintain some spare capacity), structures (such as conduit) required to place and protect cable, equipment and electronics needed to activate fiber and channelize down from higher capacity levels, cross-connect panels, fiber jumpers, etc. Structure costs include both material and labor costs and rights-of-way fees. Inside-the-building network costs include those for intra-building cable and termination. Finally, corresponding to upfront CAPEX costs, additional variable operating costs (“OPEX”) are associated with all of these items for the period of analysis. All of these costs are determined for an efficient carrier, and are designed to reflect the appropriate economies of scale, given building size and demand.
85. Non-network costs include all retailing and selling costs, usually assumed to be some proportion of revenue (based on projections for an efficient carrier). Overhead, i.e., general and administrative, costs are also determined as some proportion of revenue.
86. The annual revenue on offer to an efficient CLEC is assumed to be some reasonable share (generally 15 percent) of the annual telecommunications spending by end users in the target building. Data on annual spending are reliably available from TNS Telecom, a third party telecommunications data vendor widely used by ILECs and CLECs alike.
87. Critical miscellaneous information pertain to both demand and supply-side parameters. For example, on the demand side, I assume that the CLEC extending fiber to a building can reasonably expect to capture 15 percent of the annual telecommunications spending at the building. This is based on real-world information and studies conducted by respected industry analysts. On the supply side, a critical driver of cost is the distance over which the CLEC would have to deploy its loop. This is determined by first obtaining location information for the target building and the CLEC that has a

network or a node nearest to that building. The distance between the two points is calculated using a “north-south right angle” methodology which, if anything, conservatively overestimates that distance and, therefore, the cost to extend fiber. Other important parameters are mainly financial and tax-related, all important ingredients in an NPV analysis.

88. Attachment A displays the assumptions made for critical parameters and the non-network costs. While the state-specific variable installation costs for extending fiber are also shown in Attachment A, the costs associated with all network equipment and features necessary for the NPV analysis are not displayed because of their voluminous nature. Those costs have both CAPEX and OPEX components, vary by state, and vary by location (commercial building or CLEC node). The data pertaining to those costs are not displayed in Attachment A because of their voluminous nature.<sup>73</sup>

### **C. Results of the NPV Analysis and a Breakeven Analysis**

89. Cost and revenue assumptions, whether common to all states or state-specific, are summarized in Attachment A. Although the purpose here is not to identify every building in each state that a reasonably efficient CLEC could serve with its own high capacity loop without being impaired, Attachment A provides one real-world case from each state where profitable deployment is possible.
90. Attachment A also shows the results of the state-specific breakeven analysis and, in particular, the various combinations of available revenue and distance that would permit an efficient CLECs to deploy its own high capacity loop without impairment. As noted previously, this information would enable an efficient CLEC to determine whether it could profitably deploy its own loop by simply examining its own circumstances with respect to available revenue and distance. Not surprisingly, because costs vary by state, the breakeven analysis shows that the combinations of available revenue and distance that would enable profitable deployment also vary by state.

#### **IV. CMRS PROVIDERS ARE NOT IMPAIRED WITHOUT UNBUNDLED ACCESS TO ILEC-SUPPLIED ENTRANCE FACILITIES**

##### **A. Summary of Positions of CMRS Proponents of Unbundling**

91. Several Commercial Mobile Radio Service (“CMRS”) carriers have taken positions on unbundling in this proceeding, among them T-Mobile USA, Inc. (“T-Mobile”) and Sprint Corporation (“Sprint”). T-Mobile contends that each link that connects CMRS providers’ base stations to their Mobile Switching Centers (“MSCs”) is a network element, and concludes that “the Commission therefore must conduct separate impairment analyses for each of the links...”<sup>74</sup> With respect to each of these “links,” T-Mobile takes the following positions:

- In the absence of competitive alternatives, CMRS providers are impaired if ILECs deny them the link between the base station and the central office on an unbundled basis.<sup>75</sup>
- Interoﬃce transport links “are impaired on any route on which there are insufficient competitive alternatives to the ILECs.”<sup>76</sup>
- While there often are competitive alternatives to entrance facilities, an impairment analysis nevertheless has to be conducted “to determine whether carriers that require lower capacity circuits for these links would be impaired without access to those elements on an unbundled basis.”<sup>77</sup>

92. T-Mobile claims that

the standard for determining impairment is not whether, in the absence of access to UNEs, a company would be driven out of all business segments in which it operates. Rather, the standard is whether denying a firm

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<sup>73</sup> State-specific network cost data were produced along with testimony on behalf of BellSouth in the state *TRO* proceedings for high capacity loop and transport. See the Direct Testimony of Aniruddha Banerjee in those proceedings in the nine BellSouth states.

<sup>74</sup> *Comments of T-Mobile USA, Inc.* (“T-Mobile Comments”), in this proceeding, October 4, 2004, at 3.

<sup>75</sup> *Id.*, at 3.

<sup>76</sup> *Id.*, at 4.

<sup>77</sup> *Id.*

access to UNEs poses a barrier that is likely to make it uneconomic for that firm to enter a market in which it seeks to compete.<sup>78</sup>

In this respect, T-Mobile asserts that “CMRS is not an effective substitute for most people for wireline local exchange service today and the two products do not compete in the same market.”<sup>79</sup> Based on this assumption, T-Mobile’s economist, Dr. Michael Williams, concludes that “the fact that CMRS carriers compete healthily among themselves is logically, *completely irrelevant to the issue of their ability to compete with the wireline incumbents.*”<sup>80</sup> Although it admits that service quality and functionality are among the major reasons for the allegedly limited substitutability of CMRS for wireline services, T-Mobile claims that CMRS providers cannot improve service quality without access to UNEs.<sup>81</sup> Finally, T-Mobile claims that due to “supra-competitive prices for special access services,” CMRS providers are unable “to compete effectively against ILECs for existing wireline customers.”<sup>82</sup>

93. Sprint (in its capacity of a CMRS provider) also addresses a wide array of unbundling topics.<sup>83</sup> Rather than decreasing unbundling requirements, Sprint would like ILECs to make more network elements available on an unbundled basis. With respect to its CMRS operations, Sprint urges the FCC to establish ongoing impairment analyses for high-capacity loops and transport, based on location and route-specific evidence. Further, Sprint claims “entrance facilities cannot fairly or rationally be excluded from unbundling, and the Commission has the obligation to conduct an impairment analysis for requesting carriers.”<sup>84</sup>

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<sup>78</sup> *Id.*, at 17.

<sup>79</sup> *Id.*, at 18.

<sup>80</sup> *Id.*, Attachment B, at ¶18.

<sup>81</sup> *Id.*, at 19.

<sup>82</sup> *Id.*, at 21.

<sup>83</sup> *Comments of Sprint* (“Sprint Comments”), in this proceeding, October 4, 2004.

<sup>84</sup> *Id.*, at 59.

**B. Claims of CMRS Proponents of Unbundling are Unfounded**

94. Under the *TRO*'s impairment standard, CMRS carriers are not, and cannot be, impaired without access to all ILEC network elements at TELRIC-based prices. As BellSouth has repeatedly stated in previous filings before the FCC, there is no evidence that CMRS carriers are impaired by the provision of ILEC transport as a special access service, rather than as a UNE.<sup>85</sup> There is also strong economic evidence for denying the CMRS carriers' request for unbundled ILEC entrance facilities. Plain and simple, CMRS carriers are not impaired without TELRIC-based prices for inter-office dedicated transport and entrance facilities. Thus, there is no need to conduct an impairment analysis and the FCC should deny T-Mobile's and Sprint's request for such an analysis.
95. Furthermore, CMRS carriers cannot claim to be impaired in the face of clear evidence of their success as intermodal competitors. All of the available evidence points to the fact that several years of strong growth and falling end-user prices have enabled the wireless industry to emerge as a viable intermodal competitor to ILECs and other wireline carriers. Judging by that evidence, the prognosis for continued strength and competitive progress by CMRS carriers remains promising. In fact, in a recent media interview, Sprint CEO Gary Forsee confirmed just that. Answering the question of what government should be doing to "fix" telecommunications, Mr. Forsee replied:

I think to wait for the government, the FCC or for legislation is a foolish pastime. It has been pretty clear over the past 10 years that the regulators were not going to be able to make all [competitive local exchange carriers], RBOCs and [interexchange carriers] happy. What the government has to pay attention to is overall competition. Is cable going to be able to gain traction and become a viable competitor to the RBOCs? I think that's probably the case. *Wireless is a real competitive threat to the local-access business.* The Vonage types, the power-lines types, those are niches around the edge and will gain some share, *but real competition will come from cable and wireless.*<sup>86</sup>

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<sup>85</sup> See, e.g., Reply Declaration By National Economic Research Associates, Inc. on Behalf of BellSouth Corporation, in the *TRO* proceeding, July 17, 2002.

<sup>86</sup> "Forsee Talks Telecom, Sprint CEO Defends AT&T Deal, Rips Ebberts," *Network World*, 21(32), August 9, 2004. Emphasis added.

96. If, as they claim in this proceeding, CMRS carriers were impaired at the wholesale level without access to ILEC transport and entrance facilities at UNE prices, then their substantial success at the retail level simply could not have been possible. Significantly, CMRS providers have not been purchasing entrance facilities on an unbundled basis and at TELRIC-based prices, and this has constrained neither the growth performance of individual CMRS carriers nor competition among those carriers.
97. Both T-Mobile and Sprint are quick to claim that the admittedly healthy competition among CMRS carriers is “*completely irrelevant to the issue of their ability to compete with the wireline incumbents.*”<sup>87</sup> Supposedly, this is because “the two products [wireline and wireless phone service] do not compete in the same market.”<sup>88</sup> Such a claim or conclusion is untenable for several reasons.
98. First, as stated by Sprint’s own CEO, “wireless is a real competitive threat to the local-access business.”<sup>89</sup> This could hardly be the case if wireless service was not increasingly becoming a substitute for wireline service.
99. Second, as illustrated in more detail below, CMRS carriers have hardly been impeded in growing their customer base or selling subscriptions, regardless of whether consumers regard wireless and wireline as substitutes or complements. The strong growth experienced by CMRS providers over the past years belies any attempt to minimize the fact that wireless service is increasingly becoming a substitute for wireline service. The facts remain clear—CMRS providers have entered the market to provide telephone service and have done so very successfully.
100. Third, T-Mobile’s attempt to narrow the relevant market definition to exclude wireless from the wireline market is contradicted by its own comments. On one hand, T-Mobile claims that wireline and wireless service providers compete in different markets.<sup>90</sup> Yet, T-Mobile then states “there is evidence that consumers would consider CMRS a viable

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<sup>87</sup> T-Mobile Comments, Attachment B, at ¶18.

<sup>88</sup> *Id.*, at 18.

<sup>89</sup> *Network World* article, fn. 86, *supra*.

<sup>90</sup> T-Mobile Comments, at 18.

substitute to wireline local exchange service if CMRS providers were able to lower their retail rates sufficiently.”<sup>91</sup> Economic theory defines the product market to include all products that are close demand (or supply) substitutes. In particular, product B (say, wireless service) would be a demand substitute for product A (say, wireline service) “if any increase in the price of A causes consumers to use more B instead.”<sup>92</sup> Moreover, T-Mobile’s own statement that a decrease in wireless service prices relative to wireline service prices leads to an increase in wireless service usage amounts to proof that wireless service is a substitute for wireline service. This places wireless service in the product market for wireline service. While a proper market definition also depends on the current prices of the two products in question, T-Mobile never provides any evidence that the prices for wireless service significantly exceed those for wireline service.

101. Fourth, citing various reports and studies, T-Mobile states that 60 percent of households have wireless phones, but only 5–6 percent of households have substituted wireless for wireline service.<sup>93</sup> T-Mobile finds that these statistics “clearly indicate that most consumers view wireline and wireless services as complements and hence subscribe to both services.”<sup>94</sup> “Most consumers,” however, is hardly the correct threshold for determining whether products are complements or substitutes. Furthermore, this evidence is far from clear as it ignores the potentially high substitution of call *minutes* from wireline to wireless of the 60 percent of households that have both services. Thus, wireless competition is potentially much more significant than represented by T-Mobile.

102. Fifth, in its most recent report on CMRS carriers, the FCC acknowledged that specific data on wireless substitution are unavailable. Nevertheless, T-Mobile continues to cite a number from the 2002 edition of the same report as “clear evidence” that wireless is not a close substitute to wireline service. Specifically, the FCC stated:

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<sup>91</sup> *Id.*, at 19.

<sup>92</sup> Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization*, 3rd Edition, New York: Addison-Wesley, 2000, at 612.

<sup>93</sup> T-Mobile Comments, at 18.

<sup>94</sup> *Id.*, at 19.

Evidence continues to mount, however, that consumers are substituting wireless service for traditional wireline communications. One analyst estimated, for example, that 23 percent of voice minutes in 2003 were wireless, up from 7 percent in 2000. In the *Eighth Report*, we discussed the effects of mobile telephone service on the operational and financial results of companies that offer wireline services. Such effects included a decrease in the number of residential access lines, a drop in long distance revenues, and a decline in payphone profits. In 2003 these trends continued, with the four largest LECs losing 4 percent of their access lines, and wireline long distance voice revenues declining further. One analyst stated, “wireless cannibalization remains a key driver of access line erosion.”<sup>95</sup>

Further, the FCC found:

Certainly, this is due to the relatively low cost, widespread availability, and increased use of wireless service. As we discussed in the *Eighth Report*, a number of analysts have argued that wireless service is cheaper than wireline, particularly if one is making a long distance call or when traveling. More recently, one analyst said, “we believe that a wireless customer is now indifferent as to whether he makes a call from a fixed line or from a wireless phone, given the prevalence of big buckets of cheap minutes.”<sup>96</sup>

103. Finally, recent industry reports and models predict that mobile wireless, cable telephony, and VoIP all stand to take a market share from traditional telephone companies. PriMetrica (a telecommunications research firm), in partnership with Ernst & Young, find that “intermodal competition is shaking up business-as-usual for fixed line telephone service providers.”<sup>97</sup> These companies have developed a forward-looking Wireless Substitution Model which suggests “that the threat posed by mobile telephony to the primary fixed line connection to the home is substantial.”<sup>98</sup> Similarly, another study finds that “current projections show that by 2008, 29 percent of the estimated 192 million cellular phone users in the United States will no longer have a

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<sup>95</sup> *In the Matter of Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Ninth Report (“Ninth CMRS Report”), released September 28, 2004, ¶213.

<sup>96</sup> Ninth CMRS Report, at ¶214.

<sup>97</sup> PriMetrica, Inc., *Wireline/Wireless Substitution Study*, updated November 2003 ([http://www.telegeography.com/products/wireline\\_wireless/index.php](http://www.telegeography.com/products/wireline_wireless/index.php), accessed October 14, 2004).

<sup>98</sup> *Id.*

wired phone.”<sup>99</sup> Finally, Sprint itself reportedly encountered the challenges of wireless substitution as early as 2002 when it cited wireless substitution as the reason for its then quarterly revenue decline in its wireline operations.<sup>100</sup>

104. Not only is there mounting evidence that wireless service competes successfully with wireline service, but there is also a clear indication that the two products are not the strong complements that T-Mobile would like the FCC to believe. Rather, wireless service is increasingly becoming a substitute for wireline service. Consequently, the financial health of CMRS providers is absolutely relevant to the issue of their ability to compete with wireline incumbents.

### **C. CMRS Carriers Continue to Prosper**

105. The overall health—and improving prospects—of the CMRS segment of the telecommunications industry is best understood by examining data recently released by the Cellular Telecommunications and Internet Association (“CTIA”). These data, summarized in Attachment B, demonstrate that CMRS carriers have performed spectacularly on a number of different indicators. Despite difficult economic times, the number of CMRS subscribers continues to grow. With an average annual growth rate of 40.69 percent since 1985, subscribership continues to grow at a double-digit rate. Specifically, the FCC found that during 2003, CMRS providers added 18.8 million subscribers—an increase of “almost 40 percent from the 13.3 million added in 2002...”<sup>101</sup> In addition, in 2003, CMRS carriers’ average minutes-of-use (“MOUs”) per subscriber per month grew by 100 minutes to nearly 600 minutes.<sup>102</sup> Similarly, CMRS revenues also increased steadily at an average rate of 33.51 percent per year since 1985. Significantly, there has not been a single year of negative revenue growth, and there is no indication that this strong growth pattern is going to slow down anytime soon. Not surprisingly, the tremendous growth in subscribers and revenues is directly

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<sup>99</sup> Antone Gonsalves, “Wireless-Only Subscribers Increasing” ([http://www.techweb.com/article/printableArticle.jhtml?articleID=26803793&site\\_section=](http://www.techweb.com/article/printableArticle.jhtml?articleID=26803793&site_section=), accessed October 15, 2004).

<sup>100</sup> “Sprint Slides in Face of Sluggish Wireless Growth, Long Distance Erosion” (<http://www.vpico.com/articlemanager/printerfriendly.asp?article=6050>, accessed October 15, 2004).

<sup>101</sup> Ninth CRMS Report, at ¶174.

<sup>102</sup> Ninth CRMS Report, at ¶181.

related to the increasing network coverage of wireless providers. The number of cell sites (a direct indicator of CMRS coverage) has been growing steadily at an average rate of 33.38 percent per year since 1985, and at approximately 16 percent per year over the last three years. The number of jobs created by wireless providers and the cumulative capital investments generally follow the same pattern as other performance indicators.

106. The rapid growth of the CMRS industry was made possible, in part, by steep declines in prices paid by subscribers for various wireless service plans. The steep decline in wireless prices, in turn, has been facilitated by: (1) dramatic reductions in the cost that CMRS carriers incur to provide service, (2) competition among wireless providers, (3) intermodal competition with alternatives like wireline and Internet-based communications providers, (4) regulatory change, and (5) rapidly increasing consumer acceptance of the mobility, coverage, and flexibility offered by wireless telephony. Major technological advances and cost reductions have enabled CMRS carriers to both improve service quality and diversify their service offerings. For example, T-Mobile and Sprint both offer CMRS service with a price per minute as low as five cents.<sup>103</sup> Low per-minute prices, combined with very generous “free-minute” allowances, flat-rated pricing, no long distance or roaming charges, and nationwide coverage has positioned CMRS carriers to become strong competitors to traditional wireline local and long distance service providers. In fact, as illustrated in Attachment B, it appears that after a period of decreasing average local monthly bills for CMRS subscribers (coinciding with falling prices for wireless service plans), those local monthly bills have actually trended upward in the last two years. Specifically, from 1989 through 1998, the average local bill *decreased* 8.53 percent. From 1999 through 2003, however, the average monthly bill *increased* 4.63 percent. This signifies that rising

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<sup>103</sup> For carrier plans, see <http://www.T-Mobile.com/plans/>, <http://www.sprint.com/business/products/products/sprintPcsFairAndFlexible.jsp>, accessed October 15, 2004. For instance, T-Mobile offers a wireless plan at \$59.99 per month with 1,000 “Whenever Minutes.” This translates to a least cost per minute of approximately 6 cents.

wireless usage has more than offset the decline in prices to produce new gains in revenues per subscriber.<sup>104</sup>

107. The spectacular diffusion of CMRS services in the U.S. in recent years acquires a larger significance in the context of the overall growth in telecommunications. Recent FCC statistics show that the telephone-subscribership penetration rate for all households in the U.S. was 94.2 percent in March 2004.<sup>105</sup> Unlike wireless telephony, however, the annual gain in the number of wireline-subscribing households has remained relatively flat, declining a statistically significant 0.5 percentage point from November 2003.<sup>106</sup> According to a Sprint industry presentation, the reasons for the decline in access lines are (1) *wireless substitution*, (2) competition from CLECs and cable, and (3) competition from broadband providers.<sup>107</sup> In contrast, a nascent (and now rapidly emerging) market for wireless telephony has prospects for dramatic growth for several more years. To put this into context, it may be noted that at a compound annual growth rate of 23.28 percent over the past ten years (see Attachment B), wireless subscribership doubles every 3.31 years. With that growth rate, there can be little doubt that CMRS has emerged as a strong and viable intermodal competitor (and substitute) for traditional wireline service.<sup>108</sup>
108. Finally, the rapid expansion of coverage and the deployment of nationwide calling plans (along with the forbearance of long distance and roaming charges) signifies the

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<sup>104</sup> All of these trends have been corroborated by the FCC's own efforts at assembling data about the CMRS segment of telecommunications in the U.S. By the end of 2003, wireless telephony in the U.S. experienced an almost 54 percent penetration rate, while 97 percent of the U.S. population had access to three or more CMRS carriers. See Ninth CMRS Report, at 5. See also Appendix A, Table 2 of the Ninth CMRS Report for comparable state and national wireless subscribership data. This table shows that all nine states in the BellSouth region (namely, Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee) experienced double-digit (and close to or above national average) rates of wireless subscribership growth between 2002 and 2003.

<sup>105</sup> FCC, Industry Analysis and Technology Division, Wireline Competition Bureau, "Telephone Subscribership in the United States" ("FCC Staff Report 2004"), August 2004, Table 1.

<sup>106</sup> FCC Staff Report 2004, at 3.

<sup>107</sup> Jim Sichter, Sprint, "Telecommunications Industry Trends and Regulatory Challenges," presented at the *Public Utilities Research Conference*, February 4, 2004.

<sup>108</sup> See, e.g., the discussion on wireless/wireline competition in *In the Matter of Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Sixth Report ("Sixth CMRS Report"), released July 17, 2001, at 32-34.

ease with which the larger CMRS carriers have managed to entice subscribers looking for the “anytime, anywhere” connectivity traditionally associated with wireline carriers. The footprints of these carriers now take in not just densely populated urban areas but extensive stretches of rural areas as well. According to a 2002 survey of Rural Cellular Association (“RCA”) members, “there was an average of 5.1 wireless competitors in survey participants’ markets, having increased steadily from 3.0 competitors in the 1998.”<sup>109</sup> RCA concludes that the survey indicates that there is “robust and effective competition, increasing year-to-year, in the markets served by RCA members.”<sup>110</sup> The same survey also presents evidence of increasing customer usage and declining per-minute pricing in rural areas, similar to trends that have been seen nationally.<sup>111</sup> Based on this and other evidence, the FCC concluded “that CMRS providers are competing effectively in rural areas.”<sup>112</sup> This finding serves as a timely reminder that, far from being constrained in extending service in supposedly hard or uneconomical-to-serve areas, some CMRS carriers have found it possible to ring up success stories in the marketplace without the need for additional regulation that would enable access to ILEC networks through mandatory unbundling.

#### **D. T-Mobile and Sprint PCS Continue to Exceed Their Financial Goals**

109. At the individual CMRS carrier level, it is worth examining the recent history of T-Mobile and Sprint, the two CMRS carriers that have petitioned the FCC to extend its unbundling rules to entrance facilities. According to T-Mobile, its network is “America’s fastest-growing wireless network,” while Sprint claims a national footprint.<sup>113</sup> The question that needs to be asked is whether there is any indication in the recent financial performances of the two carriers to support their belief that they

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<sup>109</sup> Ninth CMRS Report, ¶110.

<sup>110</sup> *Id.*

<sup>111</sup> *Id.*

<sup>112</sup> *Id.*, at ¶111.

<sup>113</sup> “Coverage Where It Counts” (<http://www.T-Mobile.com/coverage/?class=coverage>, accessed October 14, 2004); “Sprint Nationwide PCS Network” ([http://www1.sprintpcs.com/explore/coverage/NatwideNetwk.jsp?FOLDER%3C%3Efolder\\_id=1441749&CURRENT\\_USER%3C%3EATR\\_SCID=ECOMM&CURRENT\\_USER%3C%3EATR\\_PCode=None&CURRENT\\_USER%3C%3EATR\\_cartState=group&bmUID=1097795354051](http://www1.sprintpcs.com/explore/coverage/NatwideNetwk.jsp?FOLDER%3C%3Efolder_id=1441749&CURRENT_USER%3C%3EATR_SCID=ECOMM&CURRENT_USER%3C%3EATR_PCode=None&CURRENT_USER%3C%3EATR_cartState=group&bmUID=1097795354051), accessed October 14, 2004).

have been impaired—as per the FCC’s impairment criteria—by the non-provision as UNEs of ILEC-supplied entrance facilities and transport. After all, whether or not one believes that the CMRS carriers that perform poorly in retail markets must somehow have been impaired at the wholesale stage, the stronger retail performance of more successful CMRS carriers certainly cannot be attributed to any wholesale-stage impairment. Hence, if the performance of T-Mobile and Sprint has improved steadily over time, then wholesale-level impairment (allegedly caused by the unavailability of ILEC entrance facilities and transport as UNEs) cannot possibly have occurred. Attachment C summarizes the recent financial performance of these two carriers. In particular, it demonstrates that:

- Despite the 2001 recession and slowdowns in the telecommunications industry, both carriers experienced robust subscriber growth between 1999 and 2003. Actual 2Q2004 results promise continued strong subscribership growth over prior periods.
- Both carriers experienced robust growth in net operating revenue between 1999 and 2003. This happened despite external economic slowdowns, falling prices for wireless services, and increased competition among CMRS carriers. Actual 2Q2004 performance indicates healthy revenue gains over prior periods.
- While both carriers have experienced rising operating expenses to provide service, much of that cost increase likely can be attributed to subscribership growth and their expansion of network operations.
- Both carriers report significant improvements in operating income. In fact, after years of operating losses, both companies now report an operating income.
- One of the most important performance indicators, EBITDA, has trended rapidly upward for both companies.
- The 2003 EBITDA per subscriber has made impressive gains over previous periods for both carriers.
- The 2003 average revenue per subscriber (“ARPU”) has increased for T-Mobile and remained stable for Sprint over previous periods.

110. Collectively, these facts about the financial performance of T-Mobile and Sprint point to one critical truth: there is absolutely no evidence whatsoever that their inability to purchase ILEC entrance facilities and transport at (below-market) TELRIC-based prices caused harm or, in any way, impaired the ability of these two carriers to acquire

subscribers or grow despite difficult economic times. The overall evidence on subscribership and the financial performance of the entire CMRS segment of telecommunications makes it extremely difficult to support the economic arguments made by CMRS carriers in this proceeding for unbundled entrance facilities and transport or even an impairment analysis. The only legitimate conclusion that can be reached is that if the FCC were to order such an unbundling request, the CMRS carriers that are displaying the best performances in the telecommunications industry will only be handed a generous opportunity to augment their already handsome bottom lines.

111. T-Mobile and Sprint's attempt to increase the ILECs' unbundling requirement is nothing but a plea by these carriers to be allowed to obtain yet another link to the public switched network from the ILEC at prices that are lower than those they currently pay. There is certainly no evidence that paying market-based prices for entrance facilities (albeit higher than TELRIC-based prices) impairs and causes competitive harm to CMRS carriers. By their own pronouncements, the CMRS carriers make it clear that business has never been better (despite the recent difficult economic times); and, in information they share with their shareholders, the analyst community, and the public, there is never any complaint about being prevented from achieving their goals (financial and competitive) by the failure of ILECs to provide unbundled dedicated transport.

112. For example, Robert Dotson, President and CEO of T-Mobile USA, offered this upbeat assessment:

Strong customer growth in the second quarter continues to validate both the strength of the U.S. market overall and the value of T-Mobile's service proposition. This is the third successive quarter we have added more than a million new customers. Our Get More promise continues to deliver the best value in wireless and is complemented with the nation's best customer experience.<sup>114</sup>

113. Echoing this sentiment, Rene Oberman, CEO of T-Mobile International and Member of the Board of Management, Deutsche Telekom, added: "With 15.4 million

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<sup>114</sup> "T-Mobile International Reports Second Quarter 2004 Results of U.S. Operations" ([http://www.T-Mobile.com/company/investors/financial\\_releases/2004\\_Q2.asp](http://www.T-Mobile.com/company/investors/financial_releases/2004_Q2.asp), accessed October 14, 2004).

customers, T-Mobile USA has now passed the milestone of 15 million customers *a year ahead of the original target.*<sup>115</sup>

114. At about the same time, in its quarterly review, Sprint reported equally positive results. Sprint's "strong financial performance during the second quarter was driven by wireless products and services" and in particular (1) continued momentum in subscriber additions, (2) strength in ARPU, (3) solid improvement in churn, (4) very strong growth in profitability, (5) net operating revenue rising 6 percent from 2Q2003 and 2 percent from 1Q2004, (6) adjusted operating income rising 5 percent from 2Q2003, (7) \$1.4 billion increase in cash-on-hand from year-end 2002, (8) maintenance of an "investment grade" credit rating, and (9) sound financial conditions with an expected net debt reduction of \$8 billion through 2004.
115. Finally, the positive outlook for the wireless market is shared by FCC Chairman Michael Powell:

U.S. consumers continue to benefit from robust competition in the CMRS marketplace. As is evident by simply walking down the street and seeing so many people on their mobile phone, the continued growth in the CMRS industry in 2003, demonstrates the increased demand for and reliance upon mobile services.<sup>116</sup>

116. These confident and celebratory public statements by the most senior officials of T-Mobile and Sprint and regulators alike do not conjure up a persuasive picture of impaired and competitively harmed entities for which salvation only lies in requiring ILECs to offer entrance facilities on an unbundled basis. While clearly recognizing how competitive the CMRS industry segment is, these officials also identify the particular strengths that their companies have relied on to experience strong growth, namely, investment in new cellular technologies, additional spectrum purchases, product differentiation, new sales channels and marketing strategies, and so on. These

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<sup>115</sup> "T-Mobile International Reports Second Quarter 2004 Results of U.S. Operations" ([http://www.T-Mobile.com/company/investors/financial\\_releases/2004\\_Q2.asp](http://www.T-Mobile.com/company/investors/financial_releases/2004_Q2.asp), accessed October 14, 2004) (Emphasis added).

<sup>116</sup> Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, Ninth CMRS Report, "Statement of Chairman Michael K. Powell" (<http://www.fcc.gov>, accessed October 14, 2004).

are not the actions of impaired firms, and attempts by the two CMRS carriers to benefit their bottom lines should not be confused with a genuine competitive disadvantage.

#### **E. T-Mobile and Sprint Make Little Effort to Overcome the Alleged Impairment**

117. In the ultimate analysis, the observed choices and actions of CMRS carriers speak louder than words. If entrance facilities are such an integral part of their networks, surely the CMRS carriers can see that it is in their long-run economic interests to replace leased circuits with their own. ILECs do not have a monopoly on fiber or fiber-based facilities. There are no market or regulatory constraints on CMRS carriers' acquiring their own entrance facilities. The only likely explanation for their choosing not to do so (or to do so in a limited fashion in the case of T-Mobile) is that self-provisioning cannot yield significant savings over leasing entrance facilities from the ILECs. This economic choice is made evident by another commentor in this proceeding, ATX Communications, Inc. ATX and other CLECs make the claim that "CLECs are impaired without access to... unbundled access to entrance facilities."<sup>117</sup> While this and other CLECs might claim impairment, the true economic motivation of obtaining TELRIC-based pricing on entrance facilities is revealed in ATX's recent financial filing before the Securities Exchange Commission:

We have implemented cost savings through a variety of means, including facility consolidation, efficiency improvements, vendor negotiations, network optimization and headcount reduction. We have improved our operating efficiency through improved pricing terms and the elimination of duplicative or unnecessary network facilities. *We have also reduced network costs and capital expenditures by converting many of our local access lines to more profitable Unbundled Network Element—Platform pricing from Total Service Resale pricing, which provides higher margins. In addition, we were able to reduce the number of our facilities without substantially affecting our service area by leasing enhanced extended local loops from the incumbent local exchange carriers.*<sup>118</sup>

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<sup>117</sup> Comments of ATX Communications, Inc. et al. in this proceeding, at x.

<sup>118</sup> ATX Communications, Inc., United States Securities and Exchange Commission, Form 10-Q, Quarterly Report Pursuant to Section 13 or 15 (d) of the Securities Act of 1934 for the Quarterly Period Ended March 31, 2003 or Transition Report Pursuant to Section 13 or 15 (d) of the Securities Exchange Act of 1934, Commission File No. 000-49899, at 21. Emphasis added.

118. This statement not only demonstrates that self-provisioning is profitable, it also illustrates that TELRIC-based pricing affords CLECs handsome profit margins—even higher than those achieved through self-provisioning. Hence, leasing allows CLECs and CMRS providers like T-Mobile and Sprint to pursue capital expenditures in other parts of their networks for which economically leased options are *not* available from ILECs. Both T-Mobile and Sprint seem to have adequate resources (from their existing cash balances, cash from sales and other operations, and external funds) to finance their capital requirements into the foreseeable future. Particularly illuminating are the priorities that these carriers have for undertaking capital expenditures. T-Mobile’s capital expenditures were \$664 million in the second quarter of 2004, up from \$599 million in the first quarter of 2004 and \$402 million in the second quarter of 2003.<sup>119</sup> According to T-Mobile, “2004 capital expenditures have been accelerated to provide benefits from quality and capacity improvements in the GSM/GPRS network early in the year.”<sup>120</sup> Moreover, T-Mobile directed its capital investment to adding “more than 1,900 new on air cell sites.”<sup>121</sup> Similarly, in 2003, Sprint’s capital expenditures reached \$2.15 billion and was directed primarily toward network and capacity expansion activities (placement of new switches, transmitter and receiver sites, and related equipment), licenses, acquisitions, and so on.<sup>122</sup>

119. It is not clear how much of these companies’ capital spending was channeled into self-provisioning of entrance facilities; however, it is clear that their capital spending priorities are the construction of additional transmitter and receiver sites, increments to system capacity, and maintenance of service quality. Moreover, it does not appear that actual expenses for leased entrance facilities are an overt concern or that current spending on those facilities is threatening these providers’ ability to compete or offer the services of their choosing. Such a finding is particularly surprising in light of Sprint’s statement that “the single largest network operating cost of Sprint’s mobile

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<sup>119</sup> “T-Mobile International Reports Second Quarter 2004 Results of U.S. Operations” ([http://www.T-Mobile.com/company/investors/financial\\_releases/2004\\_Q2.asp](http://www.T-Mobile.com/company/investors/financial_releases/2004_Q2.asp), accessed October 14, 2004).

<sup>120</sup> *Id.*

<sup>121</sup> *Id.*

<sup>122</sup> Sprint Corporation 10-K, filed March 9, 2004, at 22 and 43.

wireless division is the purchase of dedicated transport facilities.”<sup>123</sup> Not only are these operating costs not mentioned in any of Sprint’s financial filings, but Sprint appears to have made no effort whatsoever to overcome this allegedly large cost by building its own facilities.

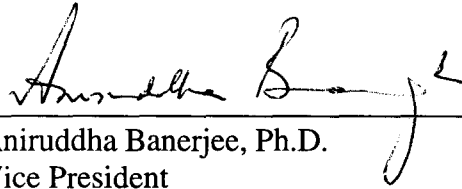
**F. Unbundling of Entrance Facilities or Transport for CMRS Carriers is Not Justified**

120. The inescapable conclusion from this detailed examination of the circumstances of the two CMRS carriers is that, apart from experiencing the usual teething troubles of a relatively new but rapidly growing industry segment, T-Mobile and Sprint have weathered both economic slowdowns and vigorous competition quite well. The prognosis, far from signifying cumulative competitive harm, remains very hopeful, and the CMRS industry segment as a whole seems intent on diversifying its technological standards and offering even more value-added services based on next generation network technologies.
121. More significantly, the CMRS carriers have entered the FCC-sponsored debate over whether unbundling rules include entrance facilities. In the absence of any rigorous demonstration of how they have been impaired or competitively harmed by existing ILEC leasing policies, and in the face of incontrovertible financial and performance evidence that run contrary to their claims, the CMRS carriers have failed to make a persuasive case to win unbundled access to ILEC entrance facilities. The generalizations that lace their economic arguments (e.g., ILECs have a monopoly over entrance facilities or tariffed prices of entrance facilities are “supra-competitive”) have no empirical support, and the two CMRS carriers have made no effort to provide any. The CMRS carriers, or representatives of that industry segment, must bear the burden of making their case affirmatively with more tangible and credible evidence. Therefore, the FCC should reject these carriers’ request for a separate impairment analysis for each link that connects the CMRS base station to their MSCs. Specifically, the FCC should reject the unfounded claim that CMRS providers are impaired without access to ILEC entrance facilities as an UNE.

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<sup>123</sup> Sprint Comments, at 55.

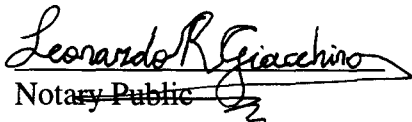
I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.



Aniruddha Banerjee, Ph.D.  
Vice President  
NERA Economic Consulting

Subscribed and sworn to before me

This 15 day of October, 2004

  
Notary Public

Leonardo Giacchino  
Notary Public  
My Commission Expires  
April 16, 2010

## ATTACHMENT A

### Testing for CLEC Impairment: Deploying High Capacity Loops To Customer Locations

#### A. Assumptions and Parameter Specifications

##### 1. Common assumptions (for all states)

Parameter	Assumption
CLEC share of building revenue	15% (after bad debt)
Cost of goods sold	25.2% of revenue
General and administrative cost	27.4% of revenue
Average depreciable life of network assets (years)	10
Net Present Value (years)	10
Weighted average cost of capital	10.83%
BellSouth tax rate	39%
Year 0 sales cost multiple	1.9
Yearly customer churn	20.21%
Revenue per DS-1 circuit	\$6,000

##### 2. State-specific assumptions

Variable Cost of Network Extension to Commercial Buildings (per Installed Foot)	Year 0 CAPEX	Year 1+ OPEX
Alabama	\$6.4455	\$0.0824
Florida	\$7.4112	\$0.1045
Georgia	\$6.0922	\$0.0883
Kentucky	\$8.1442	\$0.0818
Louisiana	\$8.1471	\$0.1443
Mississippi	\$8.0061	\$0.1404
North Carolina	\$7.4769	\$0.0669
South Carolina	\$9.5489	\$0.1491
Tennessee	\$6.6032	\$0.1096

Note: The cost data for all *network* equipment and features (including both CAPEX and OPEX) are not reproduced here due to their voluminous nature. State-specific cost data were produced along with testimony in the state *TRO* proceedings for high capacity loop and transport. See the Direct Testimony of Aniruddha Banerjee in those proceedings in the nine BellSouth states.

### B. Building-Level NPV Analysis: Sample Results

State	Location	Number of Tenants	Nearest CLEC	Distance to Building (Feet)	Annual Telecom Spending	Available Annual Revenue	10-Year NPV
AL	1900 5 <sup>th</sup> Ave. N, Birmingham, AL35203	14	AT&T	257	\$900,924	\$135,139	\$148,886
FL	Building 3, Miami International, Miami, FL 33159	21	AT&T	256	\$1,187,616	\$178,142	\$179,901
GA	5900 Sugarloaf Pkwy, Lawrenceville, GA 30043	129	AT&T	21,119	\$2,952,504	\$442,876	\$475,620
KY	Fern Valley Road, Louisville, KY 40232	1	Xspedius	6,573	\$522,732	\$78,410	\$26,993
LA	222 St. Louis St., Baton Rouge, LA 70802	55	KMC Telecom	1,795	\$1,189,488	\$178,423	\$170,046
MS	500 Clinton Center Dr., Clinton, MS 39056	114	Xspedius	1,997,884	\$5,029,488	\$754,423	negative
NC	15720 John J. Delaney Dr., Charlotte, NC 28277	30	Time Warner Telecom	459	\$578,844	\$86,827	\$78,218
SC	1200 Woodruff Rd, Greenville, SC 29607	154	Adelphia/Telcove	4,872	\$1,103,748	\$165,562	\$152,995
TN	1312 21 <sup>st</sup> Ave. S, Nashville, TN 37212	1	Adelphia/Telcove	2,948	\$942,756	\$141,413	\$150,271

## C. Breakeven Analysis for Nearest CLEC (NPV ≥ 0)

### 1. Alabama

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$186,982	\$28,047	\$200,000	\$30,000	673
1,000	\$208,510	\$31,277	\$250,000	\$37,500	2,780
5,000	\$301,465	\$45,220	\$500,000	\$75,000	12,633
10,000	\$428,120	\$64,218	\$1,000,000	\$150,000	32,778
20,000	\$682,545	\$102,382	\$2,000,000	\$300,000	68,042
30,000	\$925,950	\$138,893			
50,000	\$1,492,354	\$223,853			
100,000	\$2,724,893	\$408,734			

### 2. Florida

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$214,342	\$32,151	\$200,000	\$30,000	N/A <sup>124</sup>
1,000	\$237,960	\$35,694	\$250,000	\$37,500	1,385
5,000	\$358,706	\$53,806	\$500,000	\$75,000	9,710
10,000	\$507,625	\$76,144	\$1,000,000	\$150,000	26,738
20,000	\$793,552	\$119,033	\$2,000,000	\$300,000	57,724
30,000	\$1,091,388	\$163,708			
50,000	\$1,797,305	\$269,596			
100,000	\$3,109,500	\$466,425			

<sup>124</sup> An "N/A" signifies that NPV would be negative even at zero distance.

### 3. Georgia

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$203,674	\$30,551	\$200,000	\$30,000	1
1,000	\$223,126	\$33,469	\$250,000	\$37,500	2,171
5,000	\$312,677	\$46,902	\$500,000	\$75,000	12,658
10,000	\$432,420	\$64,863	\$1,000,000	\$150,000	33,956
20,000	\$671,907	\$100,786	\$2,000,000	\$300,000	73,231
30,000	\$904,362	\$135,654			
50,000	\$1,424,658	\$213,699			
100,000	\$2,578,598	\$386,790			

### 4. Kentucky

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$191,080	\$28,662	\$200,000	\$30,000	415
1,000	\$217,637	\$32,646	\$250,000	\$37,500	2,106
5,000	\$344,428	\$51,664	\$500,000	\$75,000	9,979
10,000	\$500,603	\$75,090	\$1,000,000	\$150,000	26,092
20,000	\$812,955	\$121,943	\$2,000,000	\$300,000	54,640
30,000	\$1,208,420	\$181,263			
50,000	\$1,868,763	\$280,314			
100,000	\$3,494,393	\$524,159			

5. Louisiana

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$205,928	\$30,889	\$200,000	\$30,000	673
1,000	\$232,333	\$34,850	\$250,000	\$37,500	2,780
5,000	\$365,783	\$54,867	\$500,000	\$75,000	12,633
10,000	\$528,120	\$79,286	\$1,000,000	\$150,000	32,778
20,000	\$854,150	\$128,123	\$2,000,000	\$300,000	68,042
30,000	\$1,273,778	\$191,067			
50,000	\$1,967,928	\$295,189			
100,000	\$3,665,927	\$549,889			

6. Mississippi

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$193,373	\$29,006	\$200,000	\$30,000	330
1,000	\$220,260	\$33,039	\$250,000	\$37,500	1,998
5,000	\$349,010	\$52,352	\$500,000	\$75,000	9,738
10,000	\$507,528	\$76,129	\$1,000,000	\$150,000	25,588
20,000	\$824,563	\$123,684	\$2,000,000	\$300,000	53,411
30,000	\$1,227,784	\$184,168			
50,000	\$1,901,735	\$285,260			
100,000	\$3,559,798	\$533,970			

## 7. North Carolina

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$204,368	\$30,655	\$200,000	\$30,000	N/A
1,000	\$227,620	\$34,143	\$250,000	\$37,500	1,830
5,000	\$341,277	\$51,192	\$500,000	\$75,000	10,709
10,000	\$473,198	\$70,980	\$1,000,000	\$150,000	28,759
20,000	\$753,098	\$112,965	\$2,000,000	\$300,000	61,036
30,000	\$1,032,997	\$154,950			
50,000	\$1,714,887	\$257,233			
100,000	\$3,006,642	\$450,996			

## 8. South Carolina

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$194,725	\$29,209	\$200,000	\$30,000	255
1,000	\$226,525	\$33,979	\$250,000	\$37,500	1,655
5,000	\$377,613	\$56,642	\$500,000	\$75,000	8,192
10,000	\$563,908	\$84,586	\$1,000,000	\$150,000	21,564
20,000	\$935,347	\$140,302	\$2,000,000	\$300,000	44,860
30,000	\$1,392,362	\$208,854			
50,000	\$2,175,052	\$326,258			
100,000	\$4,113,507	\$617,026			

9. Tennessee

Distance is Fixed, Available Revenue Adjusts			Available Revenue is Fixed, Distance Adjusts		
Distance (Feet)	Annual Building Revenue	Revenue Available to CLEC	Annual Building Revenue	Revenue Available to CLEC	Distance (Feet)
100	\$176,780	\$26,517	\$200,000	\$30,000	1,081
1,000	\$198,073	\$29,711	\$250,000	\$37,500	3,146
5,000	\$294,423	\$44,163	\$500,000	\$75,000	12,915
10,000	\$422,155	\$63,323	\$1,000,000	\$150,000	32,780
20,000	\$677,616	\$101,642	\$2,000,000	\$300,000	69,316
30,000	\$925,932	\$138,890			
50,000	\$1,476,062	\$221,409			
100,000	\$2,725,891	\$408,884			

## **ATTACHMENT B**

See attached spreadsheet “Banerjee Reply Declaration Attachments.xls” under tab “Attachment B.” This worksheet provides data on Wireless Industry Performance, June 1985 to December 2003.

**Attachment B**  
**Wireless Industry Performance**  
**June 1985 to December 2003**

Year	Estimated Subscribers		Revenues		Cell Sites		Employees		Cumulative Capital Investment		Average Local Bill	
	Year-End	Growth	Revenues	Growth	Year-End	Growth	Year-End	Growth	Investment	Growth	Monthly	Growth
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
		(b) / p(b) - 1		(d) / p(d) - 1		(f) / p(f) - 1		(h) / p(h) - 1		(j) / p(j) - 1		(l) / p(l) - 1
1985	340,213	n/a %	\$ 482,428	n/a %	913	n/a %	2,727	n/a %	\$ 1,499,918	n/a %	\$ n/a	n/a %
1986	681,825	100.41	823,052	70.61	1,531	67.69	4,334	58.93	2,576,916	71.80	n/a	n/a
1987	1,230,855	80.52	1,151,519	39.91	2,305	50.56	7,147	64.91	3,958,983	53.63	n/a	n/a
1988	2,069,441	68.13	1,959,548	70.17	3,209	39.22	11,400	59.51	5,863,694	48.11	96.65	n/a
1989	3,508,944	69.56	3,340,595	70.48	4,169	29.92	15,927	39.71	8,155,615	39.09	87.71	(9.26)
1990	5,283,055	50.56	4,548,820	36.17	5,616	34.71	21,382	34.25	11,493,361	40.93	82.32	(6.14)
1991	7,557,148	43.05	5,708,522	25.49	7,847	39.73	26,327	23.13	16,101,283	40.09	73.59	(10.61)
1992	11,032,753	45.99	7,822,726	37.04	10,307	31.35	34,348	30.47	20,538,209	27.56	68.60	(6.77)
1993	16,009,461	45.11	10,895,175	39.28	12,824	24.42	39,810	15.90	26,732,333	30.16	64.06	(6.61)
1994	24,134,421	50.75	14,229,922	30.61	17,920	39.74	53,902	35.40	32,046,599	19.88	57.33	(10.52)
1995	33,758,661	39.88	19,080,239	34.09	22,663	26.47	68,165	26.46	45,802,178	42.92	51.66	(9.88)
1996	44,042,992	30.46	23,634,971	23.87	30,045	32.57	84,161	23.47	59,280,568	29.43	48.24	(6.63)
1997	55,312,293	25.59	27,485,633	16.29	51,600	71.74	109,387	29.97	83,512,204	40.88	43.30	(10.25)
1998	69,209,321	25.12	33,133,175	20.55	65,887	27.69	134,754	23.19	110,721,586	32.58	39.64	(8.45)
1999	86,047,003	24.33	40,018,489	20.78	81,698	24.00	155,817	15.63	138,047,692	24.68	40.76	2.82
2000	109,478,031	27.23	52,466,020	31.10	104,288	27.65	184,449	18.38	166,276,745	20.45	45.21	10.94
2001	128,374,512	17.26	65,316,234	24.49	127,540	22.30	203,580	10.37	204,758,796	23.14	46.51	2.88
2002	140,766,842	9.65	76,508,187	17.14	139,338	9.25	192,410	(5.49)	245,341,024	19.82	47.93	3.04
2003	158,721,981	12.76	87,624,093	14.53	162,986	16.97	205,629	6.87	280,013,963	14.13	49.70	3.69
<b>Average growth rate<sup>1</sup></b>												
1985 - 2003		40.69 %		33.51 %		33.38 %		27.15 %		33.71 %		(4.34) %
1994 - 2003		23.28		22.38		27.80		16.04		27.23		(1.57)

**Notes and Source:**

CTIA, Semi-Annual Wireless Industry Survey, (see [http://files.ctia.org/pdf/CTIA\\_Semiannual\\_Survey\\_YE2003.pdf](http://files.ctia.org/pdf/CTIA_Semiannual_Survey_YE2003.pdf)).

<sup>1</sup> Average annual compounded growth rate.

## **ATTACHMENT C**

See attached spreadsheet "Banerjee Reply Declaration Attachments.xls" under tab "Attachment C." This worksheet provides financial performance data for the Sprint PCS Group and T-Mobile USA, Inc., 1999-2003.

**Attachment C**  
**Sprint PCS Group**  
**1999 to 2003**

Year	Subscribers		Net Operating Revenues		Operating Expenses		Operating Income/Loss		EBITDA <sup>1</sup>		Per Subscriber			ARPU <sup>2</sup>	
	Year-End	Growth	Revenues	Growth	Expenses	Growth	Income	Growth	Income	Growth	Revenues	Expenses	EBITA	Monthly	Growth
	(Millions)	(Percent)	(\$ Million)	(Percent)	(\$ Million)	(Percent)	(\$ Million)	(Percent)	(\$ Million)	(Percent)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Percent)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
		(b) / p(b) - 1		(d) / p(d) - 1		(f) / p(f) - 1	(d) - (f)	(h) / p(h) - 1		(j) / p(j) - 1					(o) / p(o) - 1
1999	5.7	n/a %	\$ 3,373	n/a %	\$ 6,610	n/a %	\$ (3,237)	n/a %	(1,714)	n/a %	\$ 592	\$ 1,160	\$ (301)	\$ 58	n/a %
2000	9.5	66.67	6,341	87.99	8,269	25.10	(1,928)	40.44	(51)	97.02	667	870	(5)	59	1.72
2001	13.6	43.16	9,725	53.37	10,372	25.43	(647)	66.44	1,503	n/a	715	763	111	61	3.39
2002	14.8	8.82	12,074	24.15	11,599	11.83	475	n/a	2,742	82.44	816	784	185	62	1.64
2003	15.9	7.43	12,690	5.10	12,139	4.66	551	16.00	3,037	10.76	798	763	191	61	(1.61)
Average growth rate <sup>4</sup>	29.24 %			39.27 %		16.41 %		n/a %		n/a %					1.27 %

**T-Mobile USA, Inc.**  
**1999 to 2003**

Year	Subscribers		Net Operating Revenues		Operating Expenses		Operating Income/Loss		EBITDA <sup>1</sup>		Per Subscriber			ARPU <sup>2</sup>	
	Year-End <sup>3</sup>	Growth	Revenues	Growth	Expenses	Growth	Income	Growth	Income	Growth	Revenues	Expenses	EBITA	Monthly	Growth
	(Millions)	(Percent)	(\$ Million)	(Percent)	(\$ Million)	(Percent)	(\$ Million)	(Percent)	(\$ Million)	(Percent)	(Dollars)	(Dollars)	(Dollars)	(Dollars)	(Percent)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
		(b) / p(b) - 1		(d) / p(d) - 1		(f) / p(f) - 1	(d) - (f)	(h) / p(h) - 1		(j) / p(j) - 1					(o) / p(o) - 1
1999	0.8	n/a %	\$ 476	n/a %	\$ 798	n/a %	\$ (323)	n/a %	(182)	\$ n/a %	\$ 562	\$ 944	\$ (215)	n/a	n/a %
2000	3.9	358.51	1,935	306.93	3,389	324.47	(1,453)	(350.31)	(643)	(253.19)	499	874	(166)	n/a	n/a
2001	7.0	80.28	3,379	74.63	5,980	76.47	(2,601)	(78.92)	(509)	20.76	483	855	(73)	n/a	n/a
2002	9.9	41.80	5,698	68.62	26,436	342.08	(20,738)	(697.42)	(19,476)	(3,724.46)	575	2,666	(1,964)	50	n/a
2003	13.1	32.39	8,358	46.68	8,215	(68.92)	143	n/a	1,597	n/a	637	626	122	53	6.00
Average growth rate <sup>4</sup>	98.48 %			104.75 %		79.11 %		n/a %		n/a %					n/a %

**Notes and Source:**

Sprint Corporation 10-Ks filed March 9, 2004, March 7, 2003, and March 5, 2002.

T-Mobile Financial Releases, (see [http://www.t-mobile.com/company/investors/financial\\_releases/default.asp](http://www.t-mobile.com/company/investors/financial_releases/default.asp)), T-Mobile International Reports Fourth Quarter and Full Year 2003 Results for T-Mobile USA, March 10, 2004.

T-Mobile USA, Inc. 10-K filed March 11, 2003, and VoiceStream Wireless Corporation 10-Ks filed March 4, 2002 and March 23, 2001.

<sup>1</sup> Earnings before interest, taxes, depreciation, amortization.

<sup>2</sup> Average monthly service revenue per user.

<sup>3</sup> For 199 through 2001, the subscriber number are for VoiceStream taken from FCC Sixth CMRS Report released July 17, 2001, Seventh CMRS Report released July 3, 2002, and Eighth CMRS Report released July 14, 2003.

<sup>4</sup> Average annual compounded growth rate.